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Tin Scraps.

THERE is a large waste of raw material in the manufacture of tin-ware, in the shape of clippings or scraps. These consist of iron plate, partially alloyed, and also coated, with tin, the amount of the latter varying from three to four per cent. In inferior wares the tin is itself debased with lead,

The utilization of these clippings has long been a problem to technical chemists. We condense from recent articles in the *Journal of Applied Chemistry* and the *Iron Age*, a sketch of the different processes proposed.

I. EDWARD SCHUNK, an Englishman, patented in 1848 three processes: the first involving the use of sulphide of sodium, the second, of soda, lye and litharge, and the third of a solution of chromate of potash and caustic soda. He preferred the first, as most perfectly liberating the tin, and for other reasons.

II. JAMES HIGGIN, in 1854, patented a treatment of the scraps with muriatic acid and water, mixed with a substance, such as nitrate of soda, to liberate chlorine, and facilitate the solution, from which the tin was subsequently precipitated with powdered chalk, ammonia being obtained (according to his claim) as a by-product.

III. CHAS. FRED. CLAUS patented in 1859 the use of a solution of sulphide of calcium, containing sulphur in excess. He recommended alkali waste and gas waste. From the solution bisulphide of tin is precipitated by means of muriatic acid, and converted to oxide and finally to metallic tin.

IV. ALEX. PARKES, in the same year, employed mercury, forming a tin amalgam, which was subsequently retorted.

V. The same person, in 1858, recommended concentrated oil of vitriol, which, he said, would dissolve the tin and attack the iron (when sufficiently concentrated and properly manipulated) but slightly.

VI. J. M. PATTERSON, of New Jersey, patented in 1863 the use of a bath of melted lead, to form an alloy with the tin, which, suitable proportions of tin being added, may be used as solder.

VII. Mr. EVERETT. of New York, in 1865, proposed to use tin-scraps in smelting galena.

VIII. STURDEVANT & HARMON, of Clifton Springs, New York, propose to melt off the tin from the scraps, by means of hot air and steam, in a cylindrical retort with a perforated, inverted conical bottom.

Most inventions for this purpose have failed in one of the requirements. Either the iron is not left pure enough to be marketable (less than one per cent. of tin makes it cold-short and worthless); or the tin-product itself is not in saleable form; or, finally, the process is not cheap.

The processes employing alkaline solutions (Nos. 1 and 3) do not completely extract the tin from the iron.

The processes by which the tin is obtained as oxide, or as stannate of potash or soda are objectionable because the latter substances have a limited sale only, while the former must be converted into metal at a further expense.

HIGGIN'S process is chemically satisfactory. The iron is perfectly freed from tin, and from the solution of chloride metallic tin can be directly precipitated. But the formation of chloride of sodium from the nitrate of soda consumes muriatic acid and rapidly exhausts the bath, increasing the cost of the method.

The use of mercury (No. 4) involves danger to health in discharging the rotary barrel employed, and is otherwise objectionable.

Concentrated oil of vitriol (No. 5), is both destructive and expensive.

Processes No. 6 and No. 8 leave the iron so far from pure that it is worthless for conversion into bars or steel.

Finally, none of these methods are suited to the treatment of large quantities of tin scraps at once.

A process now in successful operation, near this city, seems to be free from chemical, mechanical or commercial objections. It is the invention of Dr. ADOLPH OTT, a well-known contributor to the columns of the ENGINEERING AND MINING JOURNAL and other scientific publications of the United States and Europe. OTT'S method consists in the solution of the tin and lead of the scraps in muriatic (with a slight admixture of nitric) acid, the precipitation of the lead from this solution by means of sulphuric acid, and the final precipitation of the metallic tin by means of spelter. The iron scraps are washed first in water, then in a weak alkaline solution, then again in water, after which they are barrelled and sent to the puddling furnaces.

The details of this process, and the discussion of its commercial importance, must be reserved for another article.

English Naval Architecture.

WE had the pleasure, last week, of seeing the new English yacht, "Livonia," in the dry dock at the foot of Rutgers street. On our arrival the vessel was being lowered into the water, but we had a very fair opportunity of seeing the shape of her hull, and on the whole we must say that we were disappointed.

The stern is very nicely built, but even there the lines are not the most graceful that we have ever seen, and those of the bow appear positively bad, in comparison with those of some of our American yachts.

We may be wrong in our surmise, but we do not fear the return of the Queen's cup to England, through the fast-sailing qualities of the "Livonia." The members of the New York Yacht Club may feel inclined to let it go in order to have the fun of getting it back again, but if they want to keep it, we think they can, at least against the "Livonia."

Dogberry at Work.

THE present Commissioner of the General Land Office at Washington is desirous of distinction, it appears, in the line of stupid decisions under the Mining Law. The list of his blunders in this respect is tolerably long; and if it grows much longer, the mining community will even wish the late Commissioner back again. This is strong language; but it is justified by the recent decision of the Land Office —that the citizenship of a corporation does not carry with it that of its stockholders, and hence, that an application for a United States patent to a mining claim by a corporation must be accompanied by proof of the citizenship of every stockholder! This novel doctrine beats even WILSON'S celebrated decision that a gravel-bank was a lode! That was luminous; but this is dazzling. We trust the DRUMMOND light will be veiled a little; just now it is so bright that we can't see.

Silver Smelting in Montana.

I.—GENERAL CONSIDERATIONS.

ARGENTA DISTRICT is at present the only silver district in Montana in which the ores are beneficiated on the spot. They are treated by smelting, though by far the greater part of the Montana silver ores are really amalgamating ores. The works do not treat Argenta ores only—the production of the district being far less than the capacity of the smelting works—but also nearly all the silver ores which are at the present time mined throughout the whole Territory.

In some respects the location of these works is well, in other respects very badly, chosen. When the mines of Argenta were first discovered, seven or eight years ago, the mineral deposits, which are nearly all located on the limestone hill north of Argenta, displayed lead ores on top—some of them very rich in lead, and most of them with a satisfactory percentage of silver. True to the usual mode of developing mining districts in the West, several parties rushed to the conclusion that the ores of these mines must be smelted, though there was no mine opened to a greater depth than twenty-five feet. Works were consequently erected, first by the St. Louis and Montana Mining Co., afterwards by A. M. ELSLER, and still later by Messrs. TOOTLE, LEACH & STAPLETON, so that Argenta now boasts six blast and two cupelling furnaces. But, unfortunately, it was soon discovered that in all the lead and silver deposits occurring in the limestone—which comprise ninety-nine hundredths of the Argenta mines—the ore became continually poorer in lead with increasing depth, though it retained, in most cases, its original percentage of silver. This soon stopped one of the works entirely, while the others could work only from time to time, at long intervals, whenever a sufficiency of lead ores had accumulated to permit of a short campaign. Smelting, under these unfavorable circumstances—to which the high price of charcoal, of labor, the poor quality of accessible fire-proof material, and the costliness of smelting large quantities of fluxes must be added—could, therefore, not be very profitable, especially as the reduction of the litharge and subsequent shipment of the lead was out of the question. Even since the railroad has come within less than four hundred miles of Argenta the lead cannot be shipped to advantage, except in the winter, when, on account of the scarcity of return freight to Corinne, this may be done at a cost of twenty dollars per ton. But even at Corinne lead has a value of only three and a half cents per pound, thus leaving two and a half cents per pound as a margin for reduction from ores poor in lead and for losses

in smelting. The consequence is, of course, that the smelting works cannot pay anything for the lead in the ores, and that the cost of smelting, as well as freight and the profit of the smelting works, must come out of the contents in silver. This, and what is still worse for the miner, quite arbitrary buying rates on the part of the furnaces, has permitted the mining of silver ores in Montana to dwindle down to a small fraction of what it actually should be. Only the richest ores are now mined in especially favored localities, and the production of silver in Montana for this year will, under the most favorable circumstances, not exceed $250,000, whereas it should be, according to the abundance of the ores in the Territory which are available even at present, not less than $2,500,000.

As I mentioned before, by far the greater part of the now known silver ores of Montana should not be treated by smelting at all, but by chloridizing, roasting and amalgamation. This process is not only far cheaper than smelting, but it is also, under the circumstances, less affected by fluctuations in the quality of the ore as furnished by the mines—especially when the Stetefeldt furnace or the Brückner cylinder are used for roasting, since in these apparatuses a varying percentage of lead will have little influence on either the cost or the perfection of the roasting.

Lately Messrs. S. H. Boum & Co., who own the largest smelting works of Argenta, have acquired by purchase a vein which occurs in the granite immediately on the bank of Rattlesnake creek. This vein carries very good lead ores—carbonates, phosphates and molybdenates on the surface, and galena in the lower part of the shafts. The owners are now hard at work to open this vein, so as to get adequate stoping ground and reserves as soon as possible. The lode is, on an average, as far as exposed, three feet wide, and contains an ore seam of twelve to fifteen inches, which is very solid and free from gangue. This vein, which is christened the Ferdinand, and the Eaton and Legal Tender—deposits in the limestone above, which both contain very good smelting ores in nests—are probably sufficient to deliver all the lead ores needed for the present capacity of the smelting works in order to extract the silver from the quartzose silver ores bought from other districts. But if in these mines, also, the percentage of lead should decrease as much in depth as it has done in all the others of the district, the furnaces of Argenta will, indeed, be in a poor location. For besides the existence of these plumbiferous ores in the immediate vicinity, there is nothing in the location to recommend it, except a very good water-power and the neighborhood of a marl bed, which furnishes a good hearth for the cupelling furnace. Charcoal and iron ore have to be bought at high prices, and a good lining for the blast furnaces is not at hand, granite being used for this purpose in default of something better.

And in a commercial point of view, Argenta will certainly never amount to anything, as no railroad is ever likely to touch it. I have hinted above, that in years hereafter, when lead shall have acquired a certain value in Montana, the amalgamating process, which would be so advantageous at the present time, will not be in place for the beneficiation of the silver ores of the Territory. But nature, which has so bountifully supplied this Territory with the ores of all the metals, has also here furnished the means of introducing a rational process for the extraction of the precious metals from the ores under discussion. I refer to the existence of a vast amount of sulphuretted copper ores in various parts of the Territory. Some of these deposits are located close to a natural line of railroad, i. e., near the low Deer Lodge pass in Butte District. It is probable that even the main line of the Territory, the North Pacific Railroad, will run through this pass and down the valley of the Deer Lodge.

These copper veins carry ores very free from gangue, principally yellow sulphurets and peacock-ore, both mixed with iron pyrites. Near the surface, however, these minerals are oxidized and converted into carbonates, oxides and silicates. We have here, then, the true basis for the extraction of silver from the quartzose ores of the Territory by smelting. It is true, the extraction by means of lead is a much less complicated process, but the use of copper sulphurets will prove far more reliable, because the adequate supply of the latter is assured. It has these further advantages, even at the present time, that copper has a commercial value in the Territory, while lead has none, and that in the case of copper smelting no buying of iron ores is required for the purpose of fluxing the quartz of the silver ores, while the use of the Montana lead ores involves a heavy outlay. The reply might be made here, that the argentiferous galena ores could be dressed up to a high percentage of lead before smelting, thus rendering unnecessary a great portion of the fluxes which are now required. But, unfortunately, this cannot be done with economy, as the friable character of the silver ores, associated with the galena, makes dressing unprofitable. The ore, after dressing, would probably be poorer in silver, than before, the soft floating fahl ores, sulphides and antimonious ores having gone with the tailings.

Thus, as the case stands, the extraction of the silver from the Montana ores by smelting, will in time be the only rational one, except in districts, if such should ever be found, which would by themselves be able to furnish true silver ores enough to supply amalgamating works continually. But in the smelting works copper, not lead, must be looked for to play the *rôle* of the necessary medium.

I shall proceed in another article to describe the works now existing at Argenta, and running, it must be confessed, with a high and deserved degree of financial success.

A. Eilers.

The Origin of Crystalline Rocks.

By T. Sterry Hunt, LL.D.*

[continued from page 212.]

To explain the generation of silicates like labradorite, scapolite, garnet, and saussurite, I suggested that double aluminous silicates allied to the zeolites might have been formed, and subsequently rendered anhydrous. The production of zeolitic minerals observed by Daubrée at Plombières and Luxeuil by the action of a silicated alkaline water on the masonry of ancient Roman baths, was appealed to by way of illustration. It had there been shown by Daubrée that the elements of the zeolites had been derived in part from the waters, and in part from the mortar and even the clay of the bricks, which had been attacked, and had entered into combination with the soluble matters of the water to form chabazite. I, however, at the same time, pointed out another source of silicated minerals, upon which I had insisted since 1857, viz.: the reaction between siliceous or argillaceous matters and earthy carbonates in the presence of alkaline solutions. Numerous experiments showed that when solutions of an alkaline carbonate were heated with a mixture of silica and carbonate of magnesia, the alkaline silicate formed acted upon the latter, yielding a silicate of magnesia and regenerating the alkaline carbonate, which, without entering into permanent combination, was the medium through which the union of the silica and magnesia was effected. In this way I endeavored to explain the alteration, in the vicinity of a great, intrusive mass of dolerite, of a gray Silurian limestone, which contained, besides a little carbonate of magnesia and iron-oxide, a portion of very silicious matter, consisting apparently of comminuted orthoclase and quartz. In place of this, there had been developed in the limestone, near its contact with the dolerite, an amorphous greenish basic silicate, which had seemingly resulted from the union of the silica and alumina with the iron oxide, the magnesia, and a portion of lime.

By the crystallization of the product thus generated, it was conceived that minerals like hornblende, garnet, and epidote might be developed in earthy sediments, and many cases of local alteration explained. Inasmuch as the reaction described required the intervention of alkaline solutions, rocks from which these were excluded would escape change, although other conditions might not be wanting. The natural association of minerals, moreover, led me to suggest that alkaline solutions might favor the crystallization of aluminous silicates, and thus convert mechanical sediments into gneisses and mica-schists. The ingenious experiments of Daubrée on the part which alkaline solutions, at elevated temperatures, may play in the formation of crystallized minerals, such as feldspar and pyroxene, were posterior to my early publications on the subject, and fully justified the importance which, early in 1857, I attributed to the intervention of alkaline silicates in the formation of crystalline silicated minerals.*

While, however, there is good reason to believe that solutions of alkaline silicates or carbonates have been efficient agents in the crystallization and molecular re-arrangement of ancient sediments, and have also played an important part in that local alteration of sedimentary strata which is often observed in the vicinity of intrusive rocks, it is clear to me that the agency of these solutions is less universal than once supposed by Daubrée and myself, and will not account for the formation of various silicated rocks found among crystalline schists, such as serpentine, hornblende, steatite, and chlorite. When I commenced the study of these crystalline strata I was led, in accordance with the almost universally received opinion of geologists, to regard them as resulting from a subsequent alteration of paleozoic sediments, which, according to different authorities, were of Cambrian, Silurian, or Devonian age. Thus in the Appalachian region, as we have already seen, they have, on supposed stratigraphical evidence, been successively placed at the base, at the summit, and in the middle of the Lower Silurian or Champlain division of the New York system. A careful chemical examination among the unaltered paleozoic sediments, which in Canada were looked upon as the stratigraphical equivalents of the bands of magnesian silicates in these crystalline schists, showed me, however, no magnesian rocks except certain silicious and ferruginous dolomites. From a consideration of reactions which I had observed to take place in such admixtures in presence of heated alkaline solutions, and from the composition of the basic silicates which I had found to be formed in silicious limestones near their contact with eruptive rocks, I was led to suppose that similar actions, on a grand scale, might transform these silicious dolomites of the unaltered strata into crystalline magnesian silicates.

Farther researches, however, convinced me that this view was inapplicable to the crystalline schists of the Appalachians, since, apart from the geognostical considerations set forth in the previous part of this paper, I found that these same crystalline strata hold beds of quartzose dolomite and magnesian carbonate, associated in such intimate relations with beds of serpentine, diallage, and steatite, as to forbid the notion that these silicates could have been generated by any transformations or chemical rearrangement of mixtures like the accompanying beds of quartzose magnesian carbonates. Hence it was that already, in 1860, as shown above, I announced my conclusion that serpentine, chlorite, and steatite had been derived from silicates like sepiolite, directly formed in waters at the earth's surface, and that the crystalline schists had resulted from the consolidation of previously formed sediments, partly chemical and partly mechanical in their origin. The latter being chiefly silico-aluminous, took, in part, the forms of gneiss and mica-schists, while from the more argillaceous strata, poorer in alkali, much of the aluminous silicate crystallized as andalusite, staurolite, cyanite, and garnet. These views were

* Address delivered before the American Association of Indianapolis, August 16th, 1871.

* Proc. Royal Soc., May 7, 1857. Amer. Jour. Sci. ii., xxiii. 438, and xxv., 289 and 435.

reiterated in 1863,* and farther in 1864, in the following language, as regards the chemically-formed sediments: "steatite, serpentine, pyroxene, hornblende, and in many cases garnet, epidote, and other silicated minerals are formed by a crystallization and molecular re-arrangement of silicates generated by chemical processes in waters at the earth's surface."† Their alteration and crystallization was compared to that of the mechanically formed feldspathic, silicious, and argillaceous sediments just mentioned.

The direct formation of the crystalline schists from an aqueous magma is a notion which belongs to an early period in geological theory. DELABECHE, in 1834,‡ conceived that they were thrown down as chemical deposits from the waters of the heated ocean, after its reaction on the crust of the cooling globe, and before the appearance of organic life. This view was revived by DAUBRÉE in 1860. Having sought to explain the alteration of paleozoic strata of mechanical origin, by the action of heated waters, he proceeds to discuss the origin of the still more ancient crystalline schists. The first precipitated waters, according to him, acting on the anhydrous silicates of the earth's crust, at a very elevated temperature, and at a great pressure, which he estimated at two hundred and fifty atmospheres, formed a magma, from which, as it cooled, were successively deposited the various strata of the crystalline schists.§ This hypothesis, violating, as it does, all the notions which sound theory teaches with regard to the chemistry of a cooling globe, has, moreover, to encounter grave geognostical difficulties. The pre-Silurian crystalline rocks belong to two or more distinct systems of different ages, succeeding each other in discordant stratification. The whole history of these rocks, moreover, shows that their various alternating strata were deposited, not as precipitates from a seething solution, but under conditions of sedimentation very like those of more recent times. In the oldest known of them, the Laurentian system, great limestone formations are interstratified with gneisses, quartzites, and even with conglomerates. All analogy, moreover, leads us to conclude that even at this early period life existed at the surface of the planet. Great accumulations of iron-oxide, beds of metallic sulphids and of graphite, exist in these oldest strata, and we know of no other agency than that of organic matter capable of generating these products.

BISCHOF had already arrived at the conclusion, which in the present state of our knowledge seems inevitable, that "all the carbon yet known to occur in a free state, can only be regarded as a product of the decomposition of carbonic acid, and as derived from the vegetable kingdom." He further adds: "Living plants decompose carbonic acid; dead organic matters decompose sulphates, so that, like carbon, sulphur appears to owe its existence in a free state to the organic kingdom."‖ As a decomposition (deoxidation) of sulphates is necessary to the production of metallic sulphids, the presence of the latter, not less than that of free sulphur and free carbon, depends on organic bodies; the part which these play in reducing and rendering soluble the peroxyd of iron, and in the production of iron ores is, moreover, well known. It was, therefore, that, after a careful study of these ancient rocks, I declared, in May, 1858, that a great mass of evidence "points to the existence of organic life, even during the Laurentian or so-called azoic period."¶

This prediction was soon verified in the discovery of the *Eozoön Canadense*, of DAWSON, the organic character of which is now admitted by all zoologists and geologists of authority. But with this discovery appeared another fact, which afforded a signal verification of my theory as to the origin and mode of deposition of serpentine and pyroxene. The microscopic and chemical researches of DAWSON and myself showed that the calcareous skeleton of this foraminiferal organism was filled with the one or the other of these silicates in such a manner as to make it evident that they had replaced the sarcode of the animal, precisely as glauconite and similar silicates have, from the Silurian times to the present, filled and injected more recent foraminiferal skeletons. I recalled in connection with this discovery, the observations of EHRENBERG, MANTELL, and BAILEY, and the more recent ones of POURTALES, to the effect that glauconite or some similar substance occasionally fills the spines of Echini, the cavities of corals and millepores, the canals in the shells of Balanus, and even forms casts of the holes made by burrowing sponges (Clionia) and worms. The significance of these facts was further illustrated by showing that the so-called glauconites differ considerably in composition, some of them containing more or less alumina or magnesia, and one from the tertiary limestones near Paris being, according to BERTHIER, a true serpentine.*

These facts in the history of Eozoön were first made known by me, in May, 1864, in the *American Journal of Science*, and subsequently more in detail, February, 1865, in a communication to the Geological Society of London.† They were speedily verified by Dr. GÜMBEL, who was then engaged in the study of the ancient crystalline schists of Bavaria, and soon recognized the existence, in the limestones of the old Hercynian gneiss, of the characteristic *Eozoön Canadense*, injected with silicates in a manner precisely similar to that observed by DAWSON and myself.‡ Later, in 1869, ROBERT HOFFMANN described the results of a minute chemical examination of the Eozoön from Raspenau, in Bohemia, confirming the previous observations in Canada and Bavaria. He showed that the calcareous shell of the Eozoön, examined by him, had been injected by a peculiar silicate, which may be described as related in composition both to glauconite and to chlorite. The masses of Eozoon he found to be enclosed and wrapped around by thin, alternating layers of a green magnesian silicate allied to picrosmine, and a brown non-magnesian mineral, which proved to be a hydrous silicate of alumina, ferrous oxyd and alkalies, related to fahlunite, or more nearly to jollyte, in composition.§

Still more recently, in the course of the present year, Dr. DAWSON detected a mineral, insoluble in acids, injecting the pores of crinoidal stems and plates in a paleozoic limestone from New Brunswick, which is made up of organic remains. This silicate, which, in decalcified specimens, shows in a beautiful manner the intimate structure of these ancient crinoids, I have found by analysis to be a hydrous silicate of alumina and ferrous oxide, with magnesia and alkalies, closely related to fahlunite and to jollyte.‖ The microscopic examinations of Dr. DAWSON show that this silicate injected the pores of the crinoidal remains and some of the interstices of the associated shell-fragments before the introduction of the calcite which cements the mass. I have since found a silicate almost identical with this, occurring under similar conditions in an Upper Silurian limestone said to be from Llangedoc, in Wales.

GÜMBEL, meanwhile, in the essay on the Laurentian rocks of Bavaria, in 1866, already referred to, fully recognized the truth of the views which I had put forward, both with regard to mineralogy of Eozoön and to the origin of the crystalline schists. His results are still farther detailed in his *Geognost. Beschreibung des ostbayerischen Grenzgebirges*, 1858, p. 833. CREDNER, moreover, as he tells us,¶ had already, from his mineralogical and lithological studies, been led to admit my views as to the original formation of serpentine, pyroxene and similar silicates (which he cites from my paper of 1865, above referred to*) when he found that GÜMBEL had arrived at similar conclusions. The views of the latter, as cited by CREDNER from the work just referred to, are, in substance, as follows: The crystalline schists, with their interstratified layers, have all the characters of altered sedimentary deposits, and from their mode of occurrence cannot be of igneous origin, nor the result of epigenic action. The originally formed sediments are conceived to have been amorphous, and, under moderate heat and pressure, to have arranged themselves and crystallized, generating various mineral species in their midst by a change which, to distinguish it from metamorphism by an epigenic process, GÜMBEL happily designates *diagenesis*.

It is unnecessary to remark that these views—the conclusions from the recent studies of GÜMBEL in Germany and CREDNER in North America—are identical with those put forth by me in 1860.

At the early periods in which the materials of the ancient crystalline schists were accumulated, it cannot be doubted that the chemical processes which generated silicates were much more active than in more recent times. The heat of the earth's crust was probably then far greater than at present, while a high temperature prevailed at comparatively small depths, and thermal waters abounded. A denser atmosphere, charged with carbonic acid gas, must also have contributed to maintain, at the earth's surface, a greater degree of heat, though one not incompatible with the existence of organic life.† These conditions must have favored many chemical processes which, in later times, have nearly ceased to operate. Hence we find that subsequently to the eozoic times silicated rocks of clearly marked chemical origin are comparatively rare. In the mechanical sediments of later periods certain crystalline minerals may be developed by a process of molecular re-arrangement—diagenesis. These are, in the feldspathic and aluminous sediments, orthoclase, muscovite, garnet, staurolite, cyanite and chiastolite, and in the more basic sediments hornblendic minerals. It is possible that these latter and similar silicates may sometimes be generated by reactions between silica on the one hand and carbonates and oxides on the other, as already pointed out in some cases of local alteration. Such a case may apply to more or less hornblendic gneisses, for example, but no sediments not of direct chemical origin are pure enough to have given rise to the great beds of serpentine, pyroxene, steatite, labradorite, etc., which abound in the ancient crystalline schists. Thus, while the materials for producing, by diagenesis, the aluminous silicates just mentioned are to be met with in the mud and clay-rocks of all ages, the chemically formed silicates, capable of crystallizing into pyroxene, talc, serpentine, etc,, have only been formed under special conditions.

(To be concluded.)

* Geol. of Canada, pp. 577-581.
† Amer. Jour. Sci., II. xxxvii., 266, and xxxviii., 183.
‡ Researches in Theoretical Geology, pp. 297-300.
§ Etudes et expériences synthétiques sur le Metamorphisme, pp 119-121.
‖ Bischof, Lehrbuch, 1st ed., II., 95. English ed., I., 252, 344.
¶ Amer. Jour. Science, II., xxv., 136.

* Amer. Jour. Sci., II., xl., 260, Report Geol. Survey Canada, 1866, p. 231, and Quar. Geol. Jour., XXI., 71.
† Amer. Jour. Sci,, II., xxxvii., 431. Quar. Geol. Jour., XXI., 67.
‡ Proc. Royal Bavar. Acad. for 1866, and Can. Naturalist, new series III., 81.
§ Jour. für Prakt. Chem., May, 1869, and Amer. Jour. Sci., III., i., 378.
‖ Amer. Jour. Sci., III., i., 379.
¶ Hermann Credner; die Gliederung der Eozoischen Formationsgruppe Nord Amerikas. Halle 1869.

* That in the Quar. Geol. Jour., XXI., 67.
† Amer. Jour. Sci., II., xxxvi., 296.

Use of Sulphur or Brimstone for Silver Ores in the Stetefeldt Furnace.

PROFESSOR GUIDO KUSTEL, the well-known Californian metallurgist and mining expert, has written an admirable article on the addition of sulphur to the charge for the Stetefeldt furnace for the *Scientific Press*, of San Francisco, which we reproduce entire:

In times when the roasting of silver ores was carried on in Freiberg for barrel-amalgamation, most critical investigations were carried on for several years for the purpose of determining what amount of sulphur should be present in the ore in order to form as much sulphuric acid as would be necessary to decompose the required quantity of salt, and to obtain the highest percentage of silver profitably. The amount of sulphur, or rather of iron sulphurets, necessary was finally agreed to be not less than twenty-five per cent.—equal to 265 pounds of sulphur to the

ton of ore. In case the ore has not enough pyrites to supply the above quantity of sulphur, more of the former had to be added. But since iron pyrites could not be obtained everywhere at a moderate price, experiments were instituted for the purpose of finding a suitable substitute containing sulphur or sulphuric acid. The most economical substance was found to be green vitriol, or sulphate of iron, of which fifty pounds were required to the ton of ore after 41.79 per cent. of water was driven out by previous calcination. These fifty pounds contained twenty-six and a half pounds of sulphuric acid.

It was found that the direct application of sulphur or brimstone did not answer in reverberatory roasting furnaces. When mixed with the ore before charging, the sulphur burned off at a temperature too low to form sulphates, and this is the first and indispensable condition with reverberatory furnaces treating silver ores. This time-and-fuel-consuming condition does not exist with the Stetefeldt furnace, owing to the peculiar way of bringing the ore particles in contact with heat and gases, as mentioned in my edition on "roasting gold and silver ores," p. 64. It is stated there that the sulphurous acid, emanating from sulphurets (or any other source) in contact with ore particles and oxygen, becomes sulphuric acid, acting directly on the salt. It is, of course, not immaterial whether this sulphurous acid is created in or outside the furnace, for it seems to be more advantageous to produce this gas outside, if introduced into the furnace below the fire-places, it being thus completely utilized in rising up through the descending shower of glowing ore.

What a waste of sulphur occurs in common reverberatory furnaces can be seen from the high amount of 265 pounds, which was found necessary to perform the chlorination in a ton of ore. It certainly must be admitted that little attention is paid here as to the amount of sulphur, especially with the Stetefeldt furnace, wherein, under like circumstances, more chlorine is produced than in common furnaces, and the above proportion of sulphur should be looked upon as a local standard for the Freiberg ore principally. In Hungary, for instance, black copper (from smelting) containing from $140 to $150 per ton is treated with seven to eight per cent. of salt where there is no sulphur at all in the mass, and no sulphur-containing substance is added. On the other hand, argentiferous arsenical pyrites bare of sulphur cannot be chloridized in roasting without the addition of sulphate of iron. These facts show that in some instances chlorine can be obtained from salt without the action of sulphuric acid, depending on substances and circumstances not yet sufficiently known; and for this reason the presence of sulphur, under ordinary circumstances, must be considered a necessary part of silver ore.

The Stetefeldt furnace admits of the most convenient and most economical application of brimstone. This chemical is by far the cheapest (about four ounces per pound), containing the highest amount of sulphur, and the perfect consumption of it in the furnace allows the use of a small percentage. It is important with ores that are generally termed "carbonates and chlorides," the latter sometimes containing either only a small percentage of chloride of silver or none at all. Also for Stetefeldtite and similar ore. Ore having no other sulphurets but a small amount of sulphuret of lead (galena) yields very little sulphur, as the greatest part turns into sulphate of lead and remains so.

In using brimstone I found that a certain class of ore, called "chloride ore," could not be chloridized higher than seventy to seventy-two per cent., but applying one-half of one per cent. of brimstone brought it up to eighty-five and a half. Treating ore that contained galena seven per cent. of chloride of silver more was obtained with the aid of brimstone.

As to the mode of administering the sulphur, it may be that by crushing the ore and brimstone together it would give the same result as to introduce it below the fire-place; but there are many obstacles in the way, and after all, it seems that the advantage is in favor of the introduction of sulphurous gas below the fire-place. No sulphurous acid reaches the top of the furnaces, and an abundant and agreeable smell of chlorine is perceptible as soon as the sulphur gas enters the furnace. An easy way to supply the brimstone for temporary use is in front of the discharge door, inside the furnace. It can be placed on a fire-brick or stone hollowed so as to receive one or two pounds of sulphur, but an outside vessel—a fifty-pound black lead crucible, for instance, with a pipe attached, leading the gas of the burning brimstone into the furnace—is preferable.

Railway Gauges.

The Chicago *Railroad Gazette* will, we trust, not be permanently interrupted by the recent disastrous conflagration in that city. It is one of the most interesting and valuable of American technical journals. In particular, we must praise its judicious course with regard to the narrow gauge *furore*. It has presented both sides of that question fully; and if it has inclined, on the whole, to throw cold water on the sanguine notions of the extreme advocates of the narrow gauge, it has done, in our opinion, just right. We extract from a recent number of the *Gazette* part of a letter from Mr. W. W. Evans, of the Institution of Civil Engineers and the American Society of Civil Engineers, in which several points are effectively put.

There appears to be an idea running in some men's heads (heads where you would be as likely to find a bumble-bee nest as brains) that cars can be made for narrow-gauge railways that can carry 2½ times their own weight, and that they cannot be built for the poor, now kicked at, 4-feet 8½-inch gauge.

Allow me to say that for years I have had cars constructed (for railways in which I have an interest) to weigh 7 tons, and carry 14 tons, and that these cars are often run with 16 tons, and that I have loaded them with 20 tons of railway iron, and hauled them 10 to 20 miles (not 50 miles an hour) to use in testing iron bridges, and have never had one break down, or any accident happen to them. Then, again, I have had these same cars hauled 50 miles an hour, without any load, and that made a bad show as regards dead weight to paying weight, the ratio being considerably over one million to one. The cars that carried the 14 tons were merely the ordinary platform, double-bogie, 8-wheeled car, with the journals made a little longer than in ordinary use, the springs made considerably stronger, and the loads properly distributed; but, I must say I have never seen one of these cars loaded with 14 tons of chairs, or rakes, or empty pine or paper boxes, or such like merchandise. What a godsend it would be, in the matter of argument, for the great prophet of narrow-gauge to catch one of these trains running with a load of chairs, stop it, and get at its ratio of dead weight to paying weight; but then, again, he might go to a railway in Chili, where he could find a narrow-gauge railway (with rolling stock I placed on it to take the place of rolling stock built in England) and see these cars being hauled up gradients of 271 feet per mile (1 in 19½) daily, with nothing in them, and nothing to put in them; yet they pay, and will work the shares of the company again to par. The former rolling stock sunk the shares from par to 24.

There is one point in this controversy about gauge of railways, which has not, to my knowledge, been broached, either in the days of Brunel or in the days of the recent prophet; it is, that the established railway gauge of the world is about the same as the established gauge of many centuries for carriages, wagons, carts, drays, and trotting wagons. To say that it is not the proper gauge is to tell the whole civilized world that they have no brains; that they have been laboring under a delusion and a snare; nay, it reflects back on the time of the Romans, and from there back to Jericho, and the boys that had a wide-gauge track around th walls, on which they practiced their 2:40 nags and cows' horns.

When George Stephenson, that great man, who had a greater development of mechanical instinct in his cranium than any other man of his age, established the 5-foot gauge, which is now the 4-feet 8½ inch gauge, he was governed by that giant, far-seeing faculty that distinguished him through life, and made him, though an uneducated man, the table companion of the ruling potentates of Europe. His great prudence hit upon the gauge that had been established for roads for centuries. He founded it upon a rock, or rather broken rocks and gravel, and there is no fear but that it will remain established for years to come, in spite of the preachings of the latter-day saints, apostles and prophets, in reference to the salvation of railway interests.

In 1869, Mr. William Elsden, C. E., was appointed by the Commissioner of Railways, at the request of the Legislative Assembly of Victoria, Australia, to visit England, Germany, France, Russia, and the United States of America, to examine and make himself acquainted with the construction and workings of the railways of those countries, and report on his return. Mr. Elsden visited all the principal railways of Europe, and then came to this country, bringing a letter of introduction from the Institution of Engineers of England. He traveled here for some months, obtaining much information in reference to railway matters. His very superior professional ability, his freedom from prejudice and bigotry of any kind, and his clear perception of right as distinguished from wrong, kept him from falling into any of the many railway crotchets and delusions of the time in which we live. He has returned, and reported to his government strongly and firmly in favor of the American railway system and the 4-feet 8½-inch gauge.

New Silver Ore Chloridizing Process.

An ingenious method of roasting and chloridizing silver ores in a mass, and without stirring, the invention of Mr. Crosby, is said to have been successfully tried in Colorado. The process may be referred to that of cooking in square ovens, and is equally simple. The ore-chamber is of oblong form, 10 feet long, 7 feet wide, and 10 feet deep, and has a perforated floor made of bricks or tiles, with 2-inch holes, about 7 inches apart; doors are provided on each side of the chamber for drawing the charge. Underneath the perforated floor are fire-boxes, the flues of which are made to pass under the floor of the chamber. Round wooden 2-inch poles are placed upright in the perforations in the bottom, and held in place by wire or light hoop-iron, passing across the top of the chamber. These being in position, and the side doors closed, the furnace is ready for charging.

The ore to be treated is prepared by mixing with it about ten pounds to the ton of cut straw, hay, or other fibrous vegetable material, with the necessary quantity of brine, the whole being moist enough to pack well. When the chamber has been charged by shoveling in the mass around and among the poles, the poles are withdrawn, and a slow fire applied beneath. The flame and heat pass under the ore-chamber, and thence upward, through the ore by means of the openings left by the removal of the poles. The moisture is rapidly expelled, and the flame then attacks the straw incorporated with the charge. As this burns out, innumerable little flues are formed, which not only lead the flame through every particle of the mass, but form avenues for the escape of sulphur and other volatile matters. A charge of 40 tons of ore can be treated in from 48 to 60 hours, and the consumption of fuel is from one-eighth to one-tenth of a cord of wood for each ton of ore.

The cost of a 40-ton furnace will vary from $1750 to $2500, and in its use it is claimed to be extremely economical; it is also claimed that it provides a way for the treatment of low grade ores that cannot be profitably handled by any other method; as the ore must be wet when put into the furnace, it can be used by either dry or wet crushing mills, the latter being at no expense for drying ore; whilst the furnace may be made of either brick or stone, requiring no power, and having no iron work exposed to the fire, the grate-bars excepted.—*The Scientific Press.*

THE COAL TRADE.

B. R. WESTERN, COAL EDITOR.

Anthracite Coals.

NEW YORK, Oct. 13, 1871.

WHOLESALE.—The warm weather of the past few days has had a perceptible effect on the Coal Trade, and the market is weak and unsettled.

The great calamity which has befallen our sister city, Chicago, and in which the sympathy of the whole nation is aroused, has also had its effect on our branch of business. The terrible news coming upon us early in the week, unsettled all business operations, and the dreadful theme monopolized the entire attention of all classes of trade. The New York Wholesale Coal Dealers, always ready to lend a helping hand to a distressed and broken-down people, particularly those with whom they have such close business relations, at once formally called a meeting, and measures for relief were immediately inaugurated. The meeting was held in the spacious offices of the Pennsylvania Coal Company, 111 Broadway. Mr. SAMUEL BONNELL, Jr., was chosen Chairman, and LOUIS T. SNOW, of the firm of WHITE, FOWLER & SNOW, Secretary.

The usual expressions of regret and sympathy, together with a recognition of the necessity for immediate action, constituted the main features of the meeting.

The following are some of the generous subscriptions which were handed in at the meeting, amounting to some $4,500, and which, no doubt, will be followed by others from parties who found it inconvenient to be present:

PENNSYLVANIA COAL CO.	$2,000
SAMUEL BONNELL, Jr.	500
DETMOLD & COX	500
C. A. BLAKE & CO.	250
SPRING MOUNTAIN COAL CO.	250
WHITE, FOWLER & SNOW	100
NICHOLSON & WELD	100
CASTNER, STICKNEY & WELLINGTON	100
W. HEISENBUTTLE	100
WELD, RICE & CO.	50
THOMAS DALTON	50
C. B. CONANT & CO.	50
CALDWELL, WESTON & CO.	50
N. Y. & LEHIGH COAL CO.	50
VERPLANCK & ATWOOD	50

and several smaller contributions at $25 each.

On Tuesday last, the Delaware and Hudson Canal Co. gave their check for $5000 to the Mayor of this city for the same noble object.

The Wilkesbarre Coal and Iron Company have called a special meeting of their Board for Tuesday next, and they may be safely put down at $2,500 more.

The Delaware, Lackawanna and Western Railroad Co. were heavy losers by the great fire. Their loss is estimated at about $100,000; this, while being in itself a considerable loss, will not prevent them from doing their share.

There are also several subscription lists going the rounds of Trinity Building and the various large coal offices. In the aggregate, therefore, the New York Coal Dealers will have contributetd the handsome sum of about $15,000. This noble example, followed by the other great centres of the Coal Trade, Philadelphia and Boston, will give much relief to those who greatly need our help in this hour of dire necessity.

BITUMINOUS.—Cumberland Coals remain unchanged. There has been a little extra demand among manufacturers, who have to re-supply the goods destroyed at Chicago. Prices remain unchanged.

RETAIL.—The warm weather has checked retail sales a trifle; but generally families are buying freely.

FREIGHTS.—Vessels are a little scarce, and freights have advanced from 10 to 15 cents.

Bituminous Coal Trade, 1870 and 1871.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending Oct. 7, 1871, compared with week ending Oct. 8, 1870.

COMPANIES.	1870. Week.	1870. Year.	1871. Week.	1871. Year.
B. & O. Canal	9,667	413,037	17,747	537,255
C. & O. R. R.	18,586	644,338	21,427	949,267
H. & B. T. R. R.	5 451	238 090	5,616	246,995
Harrisburg & D.	16,235	599,533	14,204	611,346
*L. V. R. R.		10,943	8.548	308,199
P. & N.Y.C. & R. Co.	5,586	198,388		
Cumberl'd Branch Canal	477	71.515	5,052	157,083
" Railroad	3,271	88,948	1,712	55,264
Total	59,273	2,266,092	74,296	2,865,409
Increase.			59,273	2,266,092
			15,023	599,317

The tonnage of the P. & N. Y. C. & R. R. Co. is included in that of the L. V. R.R. Co

Anthracite Coal Trade for 1870 and 1871.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending Oct. 7, 1871, compared with week ending Oct. 8, 1870.

COMPANIES.	1870. WEEK.	1870. TOTAL.	1871* WEEK.	1871* TOTAL.
*Phila & Reading R.R.	102,633	2,276,690	106 488	2,931,908
Schuylkill Canal	27,110	339,037	30,402	785,774
Lehigh Valley R. R.	57,801	2,402.428	69,154	1,685,958
Lehigh & Sus. R. R.	26,277	769.074	33,943	921,791
Lehigh Canal	27,048	560,678	33,391	513,917
Scranton North	11,977	581,916	20,761	377.348
" South	38,654	1,350,075	34,917	826.051
Penn. Coal Co., rail	24,494	884,906	26,480	516.691
" " canal	119	14,115	478	10,584
Del. & Hud. Canal Co.	14,105	1,114,298	40,728	740,659
" " East	13,571	302.55	8.811	235,520
" " West	1,345	64,606	4,188	82,244
South	6,277	349.476	10,851	229,606
Shamokin	9,214	368,663	11,600	492,601
Trevorton	....	67.374	....	....
Lykens Valley Coal Co.	3,019	47,625	2,009	71,965
Wyoming South	7,695	238,824	....	....
Wyoming North	....	....	....	4,167
P. N. Y. C. & R. R. Co.	6,352	237,491	....	104,987
Williamstown Col'y	6,367	230,068	....	....
Big Lick Col.	3,212	65,049	3,275	113,791
Total	387,270	12.264.943	441,476	10,645,562
1870		10,645,562	387,270	
Decrease		1,619,386		
Increase			54,206	

* Less coal transported for Co's use and Bituminous coal.

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, October 7, 1871.

BY RAILROAD.—ANTHRACITE.

PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.

	Tons.	Cwt.
From St. Clair	38,018	12
" Port Carbon	8,114	10
" Pottsville	1,861	11
" Schuylkill Haven	32,571	08
" Pine Grove	6,33	04
" Tamaqua	16,642	13
" Harrisburg	62	01
" Dauphin	5,002	07
Total	108,633	06

FOR SHIPMENT BY CANAL.

Passing Frackville Scales	10,262	02
" Mill Creek "	1,508	09
" Schuylkill Valley Scales	1,644	14
" Mt. Carbon "	2,380	04
" Cressona "	12,604	12
" Pine Grove "		
" Tamaqua "	3,743	07
Total	32,143	08

SHIPPED WESTWARD VIA NORTHERN CENTRAL RAILROAD.

Passing Locust Gap	766	06
" Shamokin	3,523	18
" Herndon		
Total	4,290	04

SHIPPED WEST OR SOUTH FROM PINE GROVE.

Via Schuylkill & Susquehanna R. R.	1,169	02
" Lebanon & Pine Grove Branch	1,398	01
Total	2,567	03

CONSUMED ON LATERALS.

From Frackville Scales	774	09
" Mill Creek "	713	04
" Schuylkill Valley Scales	298	07
" Mt. Carbon "	900	07
" Cressona "	262	06
" Pine Grove "	267	09
" Tamaqua "	220	01
Total	3,436	03

LEHIGH AND WYOMING COAL.

Received via Allentown, E. Penn'a Br.	70	09
" " Alburtis, "	30	03
" " Oreland, G. & N. Br.	1,180	03
" " Connecting R. R.		
" " Willow Street R. R.	198	08
Total	1,479	03

BITUMINOUS.

From Harrisburg	9,139	07
" Connecting R. R., G. & N. Br.		
" Junction R. R.	20	00
Total	9,159	07

COAL FOR COMPANY'S USE.

Anthracite	2,866	08
Bituminous	317	04
Total.	3,183	12

RECAPITULATION.

	Total for Week.	Corresponding week last Year.	
Passing over Main Line and Leb. Val. Branch	108.603 06	109,006 00	d 402 14
For Shipment by Canal	32,143 08	25,864 12	i 6,278 16
Shipped Westward via Northern Central R. R.	4,29) 04	12 09	i 4,277 15
Shipped West or South from Pine Grove	2,567 03	1,175 17	i 1,391 06
Consumed on Laterals	3,436 03	3,130 12	i 305 11
Lehigh and Wyoming Coal	1,479 03	229 00	i 1,250 03
Total Anthracite paying fr'gt	152,519 07	139,418 10	i 13,100 17
Bituminous	9,159 07	10,476 09	d 1,317 02
Total of all kinds paying fr'gt	161,678 14	149,894 19	i 11,783 15
Coal for Company's use	3,183 12	4,203 18	d 1,020 06
Total Tonnage for Week	164,861 06	154,098 17	i 10,763 09
Since Dec. 1, 1870	4,604673 14	3406.82 18	11198590 16
Total to date	4,769536 00	3560181 15	11209354 05

SHIPPED BY CANAL.

	Total for Week.	Corresponding week last Year.	
From Schuylkill Haven	26,753 15	24,992 00	i 1,761 15
" Port Clinton	3,648 00	843 05	i 2,805 00
Total Tonnage per Week	30,401 15	25 835 00	i 4.561 15
Since Dec. 1, 1870	755,372 12	319.056 01	i 436316 11
Total to date	785,774 07	344,891 01	i 440883 60

Philadelphia and Reading R. R.

Amount of coal transported on the Philadelphia and Reading Railroad during the week ending Saturday, Oct. 7, 1871:

	tons.	cwt
From St. Clair	38,018	12
" Port Carbon	8,114	10
" Pottsville	1,861	11
" Schuylkill Haven	32,571	08
" Auburn	9,178	18
" Port Clinton	16,642	13
" Allentown and Alburtis	100	12
" Harrisburgh and Dauphin	14.203	14
Total paying freight	120,691	18
Coal for Company's use	3,183	12
Total for week	123,875	10
Previously this year	3,472.837	15
Total	3,596,713	05
To same time last year	2,930,796	00

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending Oct. 7, 1871.

	1871. WEEK.	1871. YEAR.	1870. WEEK.	1870. YEAR.
By Railway	26,479 17	516,691 07	24,493 14	884,905 17
" Canal	478 07	10,583 16	118 14	14,115 02
Total	26 9 8 04	527,275 03	24,612 08	899,020 19
Decrease 1871, 371,745 16				

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Sus. Div.)

Week ending Oct. 7—Compared with same time last year.

WHERE SHIPPED FROM	WEEK 1871., tons ct	WEEK 1870. tons ct.	YEAR 1871 tons cwt.	YEAR 1870, tons. cwt.
Wyoming Region	33509 12	26217 04	948096 15	934203 03
Upper Lehigh Region	3905 18	3509.02	65167 05	115909 17
Beaver Meadow Region				
Hazleton Region	12439 03	9964 19	139692 13	242894 07
Mahanoy Region				
Tresckow Region	3409 13		49166 17	
Mauch Chunk Region	6869 11	5981 17	156078 10	77471 12
Totals	60133 17	45673 02	1358202 00	1370478 19
Increase	14460 15			
Decrease			12276 19	
DISTRIBUTION.				
Forwarded East of Mch Chunk by Rail	33942 18	26277 07	921790 16	769074 01
Forwarded East of Mch Chunk by Canal		15653 01	293679 05	394856 11
Delivered at and above Mauch Chunk	20949 19			
Delivered to L. & B. R. R. at Plymouth Bridge	1439 17	936 05	46292 10	33372 13
L. V. R. R at Packer'n	3299 17	2312 08	71188 08	153405 15
	510 06	494 01	25233 01	19769 19
Totals	60133 17	45673 02	1358202 00	1370478 19
Of the above there was transported on acc'tn of L. C. & I. Co.	11460 11	8259 02	227699 06	106319 00
W.-B. C. & I. Co.	18092 18	15566 07	647680 02	450752 05
Totals	29553 09	23825 09	875379 08	557071 05
Increase	5728 00		318308 03	
Decrease				

Lehigh Coal and Navagation Company,

Report of Coal transported over the Lehigh Canal and L. & S. Div. of Central Railroad of New Jersey for the week ending Oct. 7, 1871, and for the year 1871.

	WEEK.	YEAR.
Forwarded East of Mauch Chunk by Rail	33,942	921,790
Delivered at and above do.,	1,439	46,292
Forwarded East of do., by Canal	33,391	513.917
	68,773	1,482,000
Corresponding period last year—		
Forwarded East of Mauch Chunk by Rail	26,277	769,074
Delivered at and above do.,	936	33,372
Forwarded East of do., by Canal	27,047	560,677
	54,261	1,363,124
Increase on Railroad	8,169	165,636
Decrease " "		
Increase on Canal		
Decrease " "	6,343	46,760
Of the above there was transported on account of—		
Lehigh Coal Nav. Co.	22,376	419,070
Wilkesbarre Coal & Iron Co.	18,092	647,680
	40,469	1,066.750
Corresponding period last year—		
Lehigh Coal Nav. Co.	15,313	159,188
Wilkesbarre Coal & Iron Co.	15,566	450,752
	30,879	609,940
Increase	9,589	456,809

Schuylkill Canal.

Report of coal transported over the Schuylkill Canal for the week ending Saturday, Oct 7, 1871.

	Tons.	Cwt.
From Port Carbon		
" Pottsville		
" Schuylkill Haven	26,753	15
" Port Clinton	3,648	00
Total for week	30,401	15
Previously this year	755,372	12
Total	785,774	07
To same time last year	539,037	01

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, Oct 7, 1871.

	WEEK.	SEASON.
North	55,342 10	1062 575 15
South	10,850 18	229,606 02
Total	66,193 08	1292,178 17
Corresponding time in 1870:		
North	28.856 03	1,668,908 19
South	6,277 12	349,476 09
Total	35,133 15	2,018,385 08
Increase North	31,059 13	
Decrease South		
Total decrease		726,206 11

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for week ending Oct 7, 1871, previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL Tons. Cwt
Total Wyoming	17,355 08	446,529 13
" Hazleton	50,267 00	954,394 08
" Upper Lehigh	162 07	1.743 19
" Beaver Meadow	18,085 11	348,304 04
" Mahanoy	11,761 10	411 9 9 01
" Mauch Chunk	84 18	7.119 03
" Sullivan & Erie	566 10	3,131 11
Total Anthracite	98.284 19	2,173,202 01
Bituminous Coal from all sources	8.547 18	308,198 18
Total by rail and canal	106,832 17	2,481,400 19
Same time last year	78,928 02	3,061,121 18
Increase	27,904 15	
Decrease		582,720 19
Forwarded East from Mauch Chunk by rail	69,154 00	1,685,957 14
Same time last year	57,801 09	2,402,427 11
Increase	11,352 11	
Decrease		716,469 17

RECAPITULATION.

Forwarded East from Mauch Chunk by rail	69,154 00	1,685,957 14
To N. C. Ry. R., at Mount Carmel	223 15	4,290 06
Forwarded North from L. & B. Junction	11,459 05	233,928 10
To L. & S. R R. at Packerton for rail	149 00	5,292 09
Delivered at M'h Chunk	97 10	1,020 09
Delivered on line of road above Mauch Chunk		
Delivered above MauchChunk for use of L. V. R.R.	475 18	8,801 11
To L. & S. R R, at Penn Hav., for railroad	1,158 03	40,201 04
Do for canal		94 10
At M Chunk for canal	12,114 16	141 373 18
	3,502 12	52,242 0
Total Anthracite	98,284 19	2,173,202 01
Bituminous Coal	8,547 18	308,198 18
Total all kinds	106,832 07	2,481,400 19

This report includes all Bituminous Coal carried over the Lehigh Valley and P. & N Y. Railroads from December 1st, 1870, to date.

Delaware and Hudson Canal Company.

The following is a statement of Coal Transported by the Delaware and Hudson Canal Co. for the week ending Oct. 7, 1871.

	FOR THE WEEK.	FOR THE SEASON.
By Delaware and Hudson Canal,	40,728	740,659
By Railroad, East	8,811	235,520
" " West	4,188	82,244
" " South	10,851	229 606
Total Tons	64,578	1,288,029

For the same period last year.

	FOR THE WEEK.	FOR THE SEASON.
By Delaware and Hudson Canal,	14,105	1,114 298
By Railroad, East	13,571	302,555
" " West	1,345	64,605
" " South	6,277	349,476
Total Tons	35,298	1,830,935
Decrease	542 906	

Delaware Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna and Western R. R. for week ending October 7, 1871.

	Week. Tons. Cwt.	Year. Tons. Cwt.
Shipped North	20,760 12	377,347 18
Shipped South	38,916 15	826,050 17
Total	59,677 07	1,203,398 15
For the corresponding time last year:		
Shipped North	11.976 19	581,915 15
Shipped South	38,654 02	1.350 075 10
Total	50,631 02	1,931,991 05
Increase	9,046 06	
Decrease		1,278,592 10

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday Oct. 7, and during the year 1871, compared with the corresponding period of 1870.

WEEK.

	To C & O. Canal Tons. Cwt.	To B.&O. R.R. C. Tons. Cwt	Total. Tons Cwt
1871	17.747 00	21 427 02	39,174 02
1870	9,666 13	18,5e6 03	28,252 16
Increase	8,080 07	2,840 19	10,921 06
Decrease			

YEAR.

1871	537,254 15	949,266 15	1,486,521 10
1870	413,037 00	644,337 19	1,057,374 19
Increase	124,217 15	304,928 16	429.146 11
Decrease			

Cumberland Branch

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B.&O.R.R. Co Tons Cwt.	Total. Tons Cwt.
1871	5,042 01	1,712 11	6,754 12
1870	477 09	3,270 15	3,748 04
Increase	4,564 12		
Decrease		1,558 04	3,006 08

YEAR.

1871	157,053 03	55,263 15	212,346 18
1870	71,015 07	89,947 19	161,463 06
Increase	85,567 16		50,883 12
Decrease		34,684 04	

Huntington and Broad Top R. R. Co.

For week ending Oct. 7, 1871	5,616 tons.
Same time last year	5,451 "
Increase	"
Decrease	165 "
Total amount shipped to date	246,995 "
Same time last year	238,090 "
Increase	8,905 "
Decrease	

Shamokin Coal Trade.

For week ending October 7, 1871	11.599 13
Same time last year	9 213 18
Increase	2385 15
Decrease	
Total amount shipped to date	492.601 11
Same time last year	368,662 19
Increase	123,938 12
Decrease	

Line Prices for Coal Oct, 1871,

	Lump	Br. ken	Egg	Stove	Ches',
At Mauch Chunk	4.00	4.00	4 00	4.25	3.00
'Wilkesbarre,	3 75	3.75	3.75	4.00	3.00

Company Coals.

Oct, 1871.

	L.	Str.	Gra.	Eg.	Sto.	Chest
*Scranton at E. Port	—	—	—	—	—	—
*Pittston at Newburgh	5 10	5 10	5 30	5 40	5 80	5 10
*Lackawana at Rond't	5 10	5 10	5 30	5 60	5 95	5 10
Wilk'b're at Hoboken	4 65	4 75	5 75	5 75	6 25	5 25
Old Co. Lehigh at Pt John'n	6 25	6 25	6 25	6 25	6 50	5 50
Lehigh at Eliz. Port	6 25	6 25	6 25	6 25	6 50	8 50

For freights to different points see "Freights."
* To contractors.
* None to sell,

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

	AT NEW YORK, Oct. 1. R. A.	W. A.	AT PHILADELPHIA. Oct. 1. R. A.	W. A.
SCHUYLKILL.				
Lump	$— —	$— —	— —	— —
Steamer	6 00	— —	— —	4 50
Broken	6 00	— —	— —	— —
Egg	— —	— —	5 00	— — 4 75
Stove	6 25	— —	5 00	— — 5 00
Chestnut	5 00	— —	— —	— —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump, (along side)	6 50	—	— —	— —
Broken	6 50	— —	— —	— —
Egg	6 50	— —	— —	— —
Stove	6 50	— —	— —	— —
Chestnut	5 50	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 6 00@6 25		— —	— —
New England	"	—	— —	— —
Locust Mountain	W. A.	6 50	— —	— —
Honey Brook, Le'h	W. A.	5 50@6 25	— —	— —
Spring Mountain	" "	5 50@6 25	— —	— —
Sugar Creek	" "	5 50@6 25	— —	— —
Sugar Loaf	" "	5 50@6 25	— —	— —
Old Comp'y's	" "	5 50@6 25	— —	— —
Cross Creek	" "	5 50@6 25	— —	— —
Room Run	"	5 50@6 25	— —	— —
Girardville	" "	— —	— —	— —
McMichael	" "	— —	— —	— —
Shamokin	" "	5 25	— —	— —
Lykens Valley	" "	5 75	— —	— —
Broad Top	" "	5 25	— —	— —
Hill & Harris	" "	— —	— —	— —
Henry Clay	" "	— —	— —	— —
Powelton	"	5 25	— —	— —

*Dealers in these coals may be found in our advertising columns

Prices at Baltimore—Oct, 1871.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 60@5 85
Pittston and Plymouth, do	— —@5 60
Shamokin Red or White Ash, do	— —@5 60
Lykens Valley Red Ash, do	— —@6 30
Zerba Valley	— —@— —
Treverton	— —@— —
By retail, all kinds per ton of 2240 lbs	7 00@8 25
Georges Creek & Cumberland f. o. b. at Locust Point for cargoes	— —@4 75
Fairmount and Clarksburg gas, f. o. b. at L. Point	6 00@6 50
BITUMINOUS COALS.	
Kittaning Coal Co.'s Phœnix Vein, f.o.b. at Phila	$ —
Lemon " " "	—
Cumberland Vein Coal	—
Consolidation Coal Co.'s on board N. Y.	6 75
Maryland Coal Co. " "	6 75

Prices at Georget'n, D.C., & Alexandria, Va.

Oct, 1871.

George's Creek and Cumberland f. o. b. for shipping...$4 35@4 50

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$5 25@ 5 50
Lykens Valley	6 25@ 6 50
Shamokin Red or White Ash	5 50@ 5 75
Trevorton and Zerba Valley	— —@— —

Prices of Gas Coals.

Oct, 1871.

PROVINCIAL.

Corrected weekly by Louis J. Belloni, Jr., 41-43 Pine st., N. Y.
Duty, $1 25, gold

	Coarse	Slack.
Block House	$1 75 @-1 75	
Gowrie	1 75 @-1 75	

Corrected by Bird, Perkins & Job, 86 South street.

	Coarse.	Culm of Coal
Pictou	$2 25	@1 25
Sydney	2 25	@- 80
Lingan	1 60	@- 80
Little Glace Bay	1 60	@1 00
Caledonia	1 60	@- 80

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty $1 25 per ton, gold, on the coarse coal. 25 per cent. ad valorem on the Culm of Coal.

AMERICAN.

	Currency.
Westmoreland	$7 00 @- —
Fairmount Gas Coal Co. of N. Y.	7 00 @- —
Despard Coal Co	7 00 @- —
Penn	7 00 @- —
Newburg Orrel Gas	— — @- —
West Fairmount Gas Coal	7 00 @- —

AT PHILADELPHIA.

Powelton	$6 75

TO NEW YORK.

Provincial	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 37½
Port Caledonia	3 37½
Little Glace Bay	3 25

Freights.—Oct, 1871.

TO EASTERN PORTS.	Cumberland. From Georgetown.	Cumberland. From Baltimore.	Anthracite. From Philadel'a.	Anthracite. From East Port, Port Johnson, and Hoboken.	Anthracite. From Newbury	Anthracite. From Rondout
Amesbury			$2 50	$1 95		
Bangor	$2 75		2 25	1 70		
Bath	2 75	2 65	2 35	— —		
Boston	2 60	2 60	2 25	1 85	180	1 80
Bridgeport	2 25	2 30		1 10	1 10	1 25
Bristol		2 60		1 50		1 55
Cambridgeport			2 35	1 85		
Derby				1 25		
Dighton	2 30	2 35		— —		
East Cambridge				1 85		
Fall River	2 25	2 30		1 40	1 40	
Hackensack				—		
Hartford	2 75	3 00	2 40	1 50		
Jersey City		2 60		80	70	
Middletown				1 25		
Mystic				1 25		
New Bedford	2 50	2 35	2 00	1 40		
Newburyport	2 75			1 90		
New Haven	2 25	2 30		1 15	1 10	1 35
New London	2 25	2 30	1 95	1 25		2 20
Newport				1 40		1 25
New York	2 00	1 90	1 40	75	70	1 40
Norwalk		2 30		1 10	1 10	65
Norwich	2 25	2 30		1 20	1 40	
Pawtucket	2 50	2 50	2 15	1 20		1 50
Portland	2 50	2 60	2 40	1 70		1 65
Portsmouth, N. H	2 75	2 75		2 00		2 00
Providence	2 25	2 30	2 00	1 40	1 50	1 50
Rockport						
Saco	2 75		2 65	— —		
Sag Harbor				1 20		
Salem	2 60	2 65	2 25	1 80		
Stamford				1 10	1 10	
Stonington				1 25	1 20	1 40
Taunton				1 80		
Warren				1 40		
Washington			1 25			
TO RIVER PORTS.						
Albany		80			55	
Catskill		70			50	
Cocksackie		70			60	
Coeyman's		70			65	
Cold Spring	2 20	70			30	
Fishkill		70	1 60		30	
Haverstraw					60	
Hudson	2 20	2 25			40	
New York					60	
Nyack			1 75		30	
Poughkeepsie					30	
Rhinebeck						
Rondout					75	
Saugerties			1 60		40	
Sing Sing					75	
Stuyvesant					75	
Tarrytown					75	
Troy					55	
West Point			1 75			
Yonkers					60	

Prices of Foreign Coals.

Oct, 1871.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, N. Y.

Liverpool Gas Caking	$ 8 00@— —
" " Cannel	10 50@12 00
" House "	— —@16 00
" Orrel	12 00@14 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@17 50
"Cannel, "	18 00@20 00

Per ton 2,000 lbs. delivered.

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven for consumption	$2 10
For reshipment	2 00

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Manch Chunk to Phillipsburgh	$0 92
C. R. R., N. J., Phillipsburgh to Elizabethport	1 88
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 15

MAUCH CHUNK TO PORT JOHNSON.

L. V. R.R., or L. & S. R.R. from M. C. to Phillipsb'g	$0 92
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 88
Shipping expenses	25
Wharfage	10
Total	$2 15

TO HOBOKEN.

L. V. R. R., Mauch Chunk to Phillipsburgh	$ 92
Morris & Essex R. R. Phillipsburgh to Hoboken	1 88
Shipping expenses	20
Warfage	16
Total	$2 15

TO SOUTH AMBOY.

L. V. R. R.	92
B. & D. R. R. / Cam. & Am R. R.	1 81
Shipping Expenses	35
Total	$2 08

PENN HAVEN TO ELIZABETHPORT.

L. V. R R. Penn Haven to Phillipsburgh	90
C. RR. of N. J. Phillipsburgh to Elizabethport	126
Shipping expenses	25
Wharfage	10
Total	$ 2 51

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven..Toll..$1.35	Freight..95c....$2 30
" Port Carbon	
" Port Clinton..... " 1.88 "	55c.... 2 23

Drawback 15 cents during August.

NEW YORK.

From Schuylkil Haven ... Toll..1 10 Freight..$2 00..$3 10

The Rates of Toll on Lump and Steamer Coal will be ten per cent less than the above rates. The charge will be per ton of 2240 lbs. No charge less than Forty Cents per ton will be made for any distance. A drawback of thirty cents is allowed on all coal passing Fairmount Locks used at Philadelphia and vicinity.

Via Lehigh Canal.

TO PHILADELPHIA

Lehigh Canal	$ 80
Freight and towage	1 10
Total	$1 90

TO NEW YORK.

Lehigh Canal	$1 57
Morris Canal, Freight, Towing	2 08
Total	$2 65

TO JERSEY CITY.

Lehigh Canal	$ 44
Morris Canal, Freight	2 06
For re-shipment	2 50

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 57
Delaware Division Canal	38
Delaware and Raritan Canal	
Freight	1 25
Towage	20
Total	$2 6

TO NEW BRUNSWICK.

Lehigh Canal	
Delaware Division Canal	$73
Delaware and Raritan Canal	50
Freight	1 20
Total	$2 39

MARKET REVIEW.

FOR THE WEEK ENDING OCT. 14, 1871.

IRON.—There is no change of moment in the market for either Scotch or American Pig—the stock of both kinds is very light, and, with a good demand, prices have a hardening tendency. The sales are 200 tons Glengarnock, to arrive, at $35; and 300 do. No. 2 Lehigh, $36. Wrought Scrap is in moderate request, and we notice sales of 400 tons No. 1, ex ship, part at $39 50. New English Rails continue in demand, but the stock is very much reduced, and transactions have been confined to small parcels at prices favoring sellers; the sales are 500 tons 56 lb. Erie, on private terms: 165 tons do. Belgium, $38 50, gold; and 200 do. Old Double-headed, on private terms. Refined Bar from store continues as last noted, steady and firm at our quotations, with a fair demand. Russia Sheet has been quiet since last, though we have heard of no change in the market. Common Black Sheets are well sold up, and orders for future delivery would not be taken by the Mills, except at an advance of ½ a cent per lb., or more.

Import of Iron into New York, from Jan. 1 to Sept. 30, 1871—

	Bar.	Pig.	Sheet, &c.
From Foreign Ports	tons 16,011	tons 60,391	bdls 240,770
Coastwise	2	407	2,232
Total	tons 16,013	tons 60,798	bdls 243,002
Same time, 1870	42,113	35,105	171,422

LEAD.—There has been very little inquiry for Foreign Pig, but prices are unchanged; we quote Ordinary $5 95 @6, gold; 50 tons Spanish sold at $6 06½, and 25 do. second quality, $5 87½, both gold. Bar, 9¼ cents, Sheet and Pipe, 10¼, and Tin-lined Pipe 15, all usual discount to the Trade.

Import of Lead into New York, from Jan. 1 to Sept. 30, 1871—

From Foreign Ports	pigs. 432,444
Coastwise Ports	53,854
Total	pigs. 486,298
Same time, 1870	410,240

COPPER.—New Sheathing and Yellow Metal remain steady at our quotations. Ingot is quiet but firm at previous figures; sales 75,000 lbs. Lake, spot and balance of the month, at 23¾ cents; and 100,000 lbs., 24, December and January delivery.

SPELTER.—The demand for Foreign is confined to small parcels, at about former rates; 25 tons Silesian sold at 5¾ cents, and 25 do. C. T. H., 6¼, both gold. Domestic, 7 cents, currency.

Import of Spelter into New York, Jan. 1 to Sept. 30—

1871	plates. 211,194
1870	" 219,498

STEEL.—There is no change in any description—demand moderate and stocks good.

TIN.—The market for Pig has been very quiet, and only small sales have been made within the range of previous quotations—we have no later cable advices—the sales are 100 pigs Straits at 36¾ cents, and 7 tons English 35@35¼, gold. We quote Straits 36¼@36¾ cents, and English 35, gold. Plates are steady at previous figures, but the market is not active—the sales are 1600 bxs. assorted Charcoal Tin, at $8 75@8 87½, gold, and 500 do., 14 by 20 Coke, on private terms.

Import of Tin into New York, from Jan. 1 to Sept. 30—

	1871.	1870.
Pigs	No. 90,292	72,725
Plates	bxs. 825,223	734,637

ZINC.—Sheet continues steady and firm at previous quotations—100 csks. Mosselman sold from agent's hands at 8½ cents, gold, less 4 per cent. Manganese black oxide, 4½; Pyrolusite, 5½.

METALS.

NEW YORK, Oct. 14, 1871.

IRON.—Duty: Bars, 1 to 1¼ cents ℔ lb; Railroad, 70 cents ℔ 100 lbs.; Boiler and Plate, 1½ cents ℔ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ℔ lb; Pig, $7 ℔ ton; Polished Sheet, 3 cts. ℔ lb; Galvanized 2½; Scrap Cast, $6; Wrought, $8 per ton.

	Store Prices.
Pig, Scotch No. 1, ℔ ton	35 00@38 50
Pig, American, No. 1	37 00@38 00
Pig, American, No. 2	35 00@36 00
Pig, American, Forge	33 00@34 00
Bar Refined, English and American	80 00@— —
Bar Swedes, assorted sizes (gold)	85 00@100 00
	Store Prices, Cash.
Bar, Swedes	107 50@120
Bar, Refined, ord'y sizes	85 00@— —
Bar, Refined, 1¼ to 6 by ¼ @ 5-16 inch	— —@ 90 00
Bar, Refined, 1 & 1¼ by ¼ & 5-16	— —@ 92 50
Bar, Refined, 2½ to 3 Round & Square	— —@ 92 50
Scroll	102 50@132 50
Ovals and half-round	102 50@122 50
Band	— —@ 97 50
Horse Shoe	100 00@105 00
Rods, ⅜ to 3-16 inch	90 00@125 00
Hoop	107 50@150 00
Nail rod	6¼@— —
Sheet, Russia, as to assortment (gold)	17½@18
Sheet, Single, D. and T. Common	—4¾@— 5¾
Sheet, D. and T. Charcoal	—5¾@—6¼
Sheet, Galv'd, Nos. 14 to 26 ..... 27½ to 30 ct. dis.	12@14c ₩
" Nos. 27, 28, and 29 ..... 27½ to 30 ct. dis.	15@18c ₩
Rails, English (gold); ℔ ton	— — @59 00
Rails, American, at Works in Pa	70 00 @71 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ℔ lb or under, 2½ cents; over 7 cents and not above 11, 3 cents ℔ lb; over 11 cents, 3½ cents ℔ lb, and 10 ℔ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ℔ lb	— 15 @— 18
English Spring (2d and 1st quality)	— 7 @— 10
English Blister (2d and 1st quality)	— 10 @— 17
English Machinery	— 11 @— 13
English German (2d and 1st quality)	— 10½@— 12
American Blister "Black Diamond"	— — @— 12
American, Cast, Tool do.	— 15 @— 16
American, Spring, do.	— 9 @— 11
American Machinery, do.	— 9 @— 10
American German, do.	— 9 @— 11

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ℔ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ℔ lb	— @— 32
Copper Bolts	— @— 34
Copper Braziers, 16oz. and over	— @— 34
Copper Nails	— @— 39
Copper, Old Sheathing, &c. mixed lots	20 @— 21
Copper, old, for chemical purposes, 14@16 oz	23½@— —
Copper, American Ingot	23¾@— 24
Yellow Metal, New Sheathing & Bronze	— @— 23
Yellow Metal Bolts	25 @— —
Yellow Metal Nails	— @— 23

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100 lb

Plates, Foreign (gold) p. 100 lb. 5 75	@ 6 12½
Plates, Domestic p. lb. — 7	@— 11

LEAD.—Duty: Pig, $2 ℔ 100 lbs.; old Lead, 1½ cents ℔ lb: Pipe and Sheet, 2¼ cents ℔ lb.

Galena, ℔ 100 lbs	$— — @— —
Spanish (gold)	5 95 @6 00
German, do.	5 95 @6 00
English do.	6 15 @6 50
Bar (net)	9 25 @ —
Pipe (net)	— — @10 25
Sheet	— — @10 25

Colwell, Shaw & Willard Tin-Lined Lead Pipe 15 cts. ℔ lb.

TIN.—Duty: Pig, Bars, and Blocks, 15 ℔ cent. ad val.; Plate and Sheets and Terne Plates, 25 ℔ cent.; Roofing 25. ad val.

	Gold ℔ lb.
Banca	41 @41¼
Straits	36½@36¾
English	35 @—

PLATES.

Fair to Good Brands.	Gold.	Currency.
I. C. Charcoal, ℔ box	$8 75 @9 00	$10 25 @10 75
I.C. Coke	7 50 @8 50	9 00 @10 00
Coke Terne	6 37½@7 50	7 25 @ 9 00
Charcoal Terne	7 25 @8 25	9 50 @ 10 00

ZINC—Duty: Pig or Block, $1 50 ℔ 100 lb.; Sheet, 2½ cts. ℔ lb.

Sheet, No. 9 Foreign ℔ lb.	— @— — 9¾ @ 10

San Francisco Stock Market.

Our report from the San Francisco Mining Stock Board is dated the 10th inst. With the exception of Raymond & Ely the list is notably weaker. Belcher has fallen from its high position; our report of to-day quotes it at $310, a decline of just $100 per share compared with the report given in our last. The uninitiated can draw their own inferences—the initiated probably have; and they may have *drawn* less than they intended. Raymond & Ely has declined $20 per share compared with the report of the 6th inst., it being then placed on the list at $130; there is still a margin of $22 left on the report given a week ago. Next to Belcher, Kentuck seems to suffer the most, that item having declined $27 per share since our last. Reference to the following tables exhibits the comparison between the quotations for this and the week previous.

	Oct. 3	Oct. 10.
Savage	43	41
Yellow Jacket	60	55
Kentuck	172	145
Chollar Potosi	30	29
Gould & Curry	112	109
Belcher	410	310
Imperial	41	32
Amador	No Sales	
rown Point	305	280
aymond & Ely	88	110

New York and Allegheny is the only exception to an unchanged condition in the Petroleum list, that item having fallen from 80 to 50 during the past week. No sales have transpired. We submit the following list as furnished by the Mining Stock Board:

PETROLEUM STOCKS.

	Bid.	Asked.
Bennehoff Run	20	—
Bergen Coal and Oil	15	—
Bliven Oil	30	—
Blood Farm	—	—
Brevoort	25	—
Buchanan Farm	40	—
Central	—	—
Clinton	—	—
Home	175	—
National	—	—
New York & Allegheny	50	—
Northern Light	35	—
Phillips Pet	—	15
Pithole Creek	—	100
Rathbone Oil	24	—
Rynd Farm	30	—
Second National	—	40
Sherman & B	—	—
Tarr Farm	—	—
United Petroleum Farms	35	40
United States	—	60

Mining Stocks.

The only change worthy of note in Mining Stocks is an advance of 5 cents per share in Gregory, and a slight falling off in Grass Valley. At the Second Board yesterday 1000 Central changed hands at 6 cents, which is the only transaction occurring "on call" in the Board during the week. We append the list:

GOLD STOCKS.

	Bid.	Asked.
American Flag	—	20
Bates & Baxter	25	—
Benton	—	5
Black Hawk	—	—
Central Gold	—	—
Cons Gregory	—	40
Grass Valley	5	—
Gunnell	10	—
Holman	—	—
La Crosse	15	22
Liberty	—	—
Mariposa prf.	—	—
Montana	—	—
Rocky Mount	—	5
Quartz Hill	—	25
Smith & Parmlee	22	27
N. Y. & Eldorado	—	—

The First Newspaper.

AN ingenious physician of Paris—RENAUDOT by name—more than two hundred years ago hit upon a good idea for "cutting out" his more learned brethren, which he was not long in putting into execution, to his own no small advantage, and the great chagrin of his brother professionals. His plan was an extremely simple one, for he obtained his popularity by the very innocent expedient of collecting information, and then circulating news sheets among his patients, for their especial delectation and amusement. But inasmuch as the seasons were not always sickly, and he found he had plenty of time on his hands, he was encouraged by his success to devote his attention more exclusively to the business of journalism, by providing the public at large with news; and accordingly, in 1631, he succeeded in obtaining for himself and family the sole privilege of publishing a newspaper called the *Gazette de France*. Such, at least, is the account of the origin of newspapers given by DE SAINT FOIX.

Gall-Soap.

GALL-SOAP, for washing fine silk and ribbons, is prepared in the following manner: In a vessel of copper one pound of cocoa-nut oil is heated to 60° Fahr., and half a pound of caustic soda is added with constant stirring. In another vessel, half a pound of white Venetian turpentine is heated, and when quite hot, stirred into the copper kettle. This kettle is then covered and left for four hours, being gently heated, after which the fire is increased until the contents are perfectly clear, when one pound of ox-gall is added. After this, good, perfectly dry Castile soap is stirred into the mixture until the whole will yield but little under the pressure of the fingers; for which purpose, from one to two pounds of soap are required for the above quantity. After cooling, the soap is cut into pieces. It is excellent, and will not injure the finest colors.—*Exchange.*

New Gas Forge.

THIS is a large lamp constructed on a similar principle to that of the Bunsen, *i. e.*, a mixture of the air and gas being effected before it is burned; but the points of difference are carefully pointed out The gas jet extends *above* the orifice through which the air enters, and the tube through which the mixture of air and gas passes, is surrounded with a second tube, open below as well as above, which serves to keep the inner tube cool, and supply more air to the flame, creating a strong draught. A much greater development of heat, sufficient to fuse bronze, copper, gold, or silver, is claimed for this invention.—*Am. Chemist.*

DEPARTMENT OF POPULAR SCIENCE.

Our Tongues.

I am not going, Madam, to talk to you about talking. That were, indeed, to paint the rose or bring coals to Newcastle. What you do not know about talking had better, perhaps, for the good of the public, remain unknown. It is another, and possibly a more agreeable, use of the tongue to which I shall refer—namely, tasting.

Very strange it is, that we are so ignorant about the commonest acts and organs of our bodies. We rely upon our senses for all our knowledge of the material world, and yet we do not understand a single one of our senses. We do not even know enough to tell when one of them is lying to us—if it lies persistently. We cannot even discover how they apprehend sensations, nor how they communicate them to our consciousness. These mortifying facts we have had to acknowledge in former conversations as to smell and touch; and I may fairly say that the subject of taste is still more obscure and mysterious.

The learned are at war over the very first question that arises: What do we taste with? Some say, the tongue, the whole mucous lining of the mouth, and the palate; others say, the tongue alone; and still others insist that the faculty of taste is confined to a small portion of the back of the tongue, to wit, the part nearest to the throat.

It will be interesting to note by what simple, yet apparently conclusive, experiments the latter of these opinions has been supported; but before considering these, it is necessary to define more clearly what are to be classed as sensations of taste.

Strictly speaking, there are but three tastes, sweet, sour, and bitter. A fourth sensation, that of acridity (the so-called "puckery" taste), and those also which we class as "sharp" or "hot," must be referred to the sense of touch, as they affect the entire cavity of the mouth, by a direct process of contraction, or heating of the skin and nerves.

The three simple savors are always perceived separately. They do not blend, though they may exist together, in varying degrees of relative strength. There are degrees of sweetness and sourness; but there is no medium between sweet and sour, nor is one of them the opposite of the other, as heat is the opposite of cold, or motion of rest. Sweet and sour are as different in kind as sour and bitter. We are in the habit of connecting them as opposites, because sweet things are not usually sour, and because certain sweet things, by complete chemical changes, are transformed into sour things.

Thus your sweet cider turns to vinegar, and your fresh milk to sour milk. But your pickled peaches are both sweet and sour at the same time, and you perceive both tastes.

Some modern physiologists claim that each of these three tastes is represented by a separate nerve-pair; and the circumstance that three nerve-pairs terminate in the tongue is adduced to corroborate this theory. But I fear that, ingenious as it is, it lacks confirmation by experiment, while there are, as we shall see, experimental reasons for believing that the whole work of taste is performed by a single pair of nerves.

An almost infinite variety of so-called flavors are, in reality (as the original signification of the word may indicate), odors, and not tastes. They are perceived by the nose, either through its front-doors, the nostrils, or through its back-doors, opening into the throat. Now, as we have seen on a former occasion, nothing can be smelt which is not volatile. Hence, the so-called taste of any object must be divided into its sweetness, sourness, or bitterness, which is its taste proper, its sharpness, hotness, or astringency, which is perceived by the most delicate nerves of touch, and its aromatic or volatile flavor, which attacks the nose.

The first class of qualities is perceived by the tongue alone; the second is usually recognized by the tongue and mouth-cavity (though in strong cases it may be appreciated by other parts, as when little Johnny, last night, tasted a mustard-plaster with the pit of his stomach); the third is peculiarly the property of the proboscis. And it is the third class which, being most numerous, is most characteristic, and is, therefore, employed as a means of recognizing substances.

Animals sniff at everything before they eat it; and so do men, though (if well bred) they make less fuss about it. But you may give a dog colocynth and milk, and his nose will not prevent him from one gulp, though nothing will induce him to take another, or retain the first!

As flavors can only be perceived in volatile bodies, so taste is confined to soluble ones, while feeling or touch takes notice of solid substances as well. Next time we talk upon this subject, I shall explain to you the experiments by which the seat of the taste has been, with more or less probability, defined. Some of them, which are simple, and involve the eating of lumps of sugar by the operator, you will take pleasure, Madam, in repeating for yourself. Others, which require the aid of that pleasant amusement known as vivisection, you will have to forego, unless you mean to be a bloodthirsty anatomist. R. W. R.

Patent Pavements.

We have heard a great deal of late concerning municipal corruption and jobs of various kinds, among which the pavement jobs were not the least fruitful source of profit. The attempt has been made to copy the Parisian pavements of asphaltum; but as natural asphaltum—which is abundant and cheap in Paris—is expensive here, the attempt has been made to replace it, in part at least, by coal-tar asphaltum, which is a very inferior article; so that this style of road dressing has fallen into disrepute. Several kinds of wooden pavement have also been tried, and though these have proved better than the asphaltum plasters, they have, in point of durability at least, fallen below the standard of a good, cheap, smooth and durable pavement.

In Chicago they had not only wooden pavements, but wooden sidewalks; and to the latter is due, in a great measure, the fearful rapidity with which the recent conflagration spread. A pavement consisting of solid wood blocks placed close together could scarcely burn with any dangerous rapidity; but there are a number of objections to it, and we may reasonably look for a less objectionable substitute.

It is needless to ask why so much wooden pavement has been laid in our cities. Everybody knows that the laying of such a pavement affords one of the fattest "jobs" that a ring of hungry aldermen and councilmen can desire. There is no need to make even a show of allowing competition for such work, because pavements of this class are patented, and the sole right to lay them is invested by law in some company, and no outsider can interfere. For this reason, and because they make, for a little while, a smooth, even roadway, very pleasant to ride over, a great many miles of them have been laid in our cities, notwithstanding the fact that they are exceedingly expensive and possess but little durability, especially on streets subject to considerable traffic. Many physicians are also of the opinion that they are decidedly prejudicial to health, but on this point we do not feel competent to speak authoritatively. A pavement of stone blocks is, when properly laid, durable, and not over expensive. It is, perhaps, the cheapest kind of pavement that can be laid, except the old cobble-stone pavement, which, on account of its many deficiencies, has become nearly obsolete. The block pavement is, however, open to some objections on the score of smoothness and easy traction, and to even more grave ones on account of the noise produced by passing vehicles.

In London, a great many miles of macadamized road are in constant use on streets where a great number of vehicles are continually passing, and they have been able to consolidate the road-bed so firmly, by means of heavy steam road-rollers, that it is perfectly satisfactory on the score of durability.

On our new boulevards, in the upper part of the city, and in the Central Park gravel and macadamized roads have proved in every way suitable to the demand put upon them, and, if necessary, they could be still more firmly compacted, and made capable of withstanding the wear of heavier wagons and carts.

These roads are not over-expensive, they can be made very durable, they are smooth and the traction over them is light; they are not prejudicial to health; with but little extra trouble and expense they can be kept as free from dust as any road, and, finally, they can be kept continually in perfect repair without interrupting the traffic, and the foundation for them, once properly laid, will, if the surface is properly cared for, last for all time.

On the other hand, there is no patent on such roads, and no company with an exclusive right to construct them can make an "arrangement" with the city authorities, so preference has been given to wooden pavements.

Danks' Mechanical Puddling Furnace.

British ironmasters seem to be taking hold of this invention with a good will, and well they may, for the advantage of a machine to do away with the severe manual labor of puddling would be of the greatest moment to our English cousins.

The inventor of the American furnace, Mr. Danks, read a paper before the English Iron and Steel Institute, in August, and the invention being strongly indorsed by Mr. Abram S. Hewitt, of this city, whose reputation as a practical, scientific and wealthy ironmaster is almost as well established in England as in this country, a committee on puddling was appointed to examine the subject more closely and report to the Institute at a subsequent meeting.

This committee have decided to send out a commission of three gentlemen to examine the working of the furnaces already in operation in this country. Mr. Snellus, of Dowlais, and Mr. J. A. Jones, of Middlesborough, have been selected to act as commissioners, and the choice of the third has been left to the ironmasters of South Staffordshire.

Mr. Danks will accompany the commission, and they are to take with them ten tons each of Welsh, Cleveland, South Staffordshire and Derbyshire pig iron, and also such material for fettling as they think most suitable. It will be remembered that Mr. Menelaus, a gentleman of wide reputation in England, after a long series of careful experiments, declared that a lining capable of withstanding the heat requisite, could not be found, and for this reason he had about abandoned his operations as worthless, when Mr. Danks' machine was pronounced a success in this country.

French experiments in the same direction have also proved failures, and the English press seems to envy the renown which the American iron industry is likely to acquire, by being the leader in a branch of manufacture in which England has been regarded as the queen. They claim that Mr. Danks is a native of the "Black Country;" but the place of his nativity probably had but little to do with the invention, in comparison with the atmosphere of American enterprise by which he was surrounded for years before he invented his furnace.

Technical Monthlies.

The Manufacturer and Builder for October contains a large number of interesting and valuable articles, on a variety of subjects connected with mechanical pursuits and scientific progress.

Many excellent illustrations of various new inventions and devices may be found in this popular journal, and the variety and spice of the articles contained in it, is calculated to make it both pleasant and good reading for both young and old mechanics and artisans. The chief illustration for October is a handsome wood-cut of Mr. Aspinwall's steam yacht "Day Dream."

The Engineering and Mining Journal.

ROSSITER W. RAYMOND, Ph. D.,
WILLARD P. WARD, M. E.,
Editors.

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The Purchase of Mining Properties.

There is nothing specially mysterious about the purchase of mines, unless the parties to such transactions choose to make them mysterious by hiding the details from the public. The value of a mine is to be ascertained by determining on how great a capital, invested in purchase and plant, it will pay a certain dividend of profit. This dividend ought to be large, because the capital—that is, the mine and machinery—is gradually consumed in producing it. San Francisco capital requires proof of several years' successful prospective work, and profit at the rate of forty per cent. upon the capital. Thus, if a mine can be shown to have a certainty (or a strong probability) of three or four years of reserves, and to be capable of paying, in regular operations, four hundred thousand dollars per annum of net profit, it is worth in San Francisco one million dollars, and even the fluctuations of the stock market do not carry its value much above that figure.

In England, on the other hand, where capital is cheaper, such a property might be fairly worth a million and a half, as paying between twenty-five and thirty per cent. This reasonable margin of difference is surely enough for the agents, negotiators, and promoters of the sale; and more than this, even in the case of a good mine, is unjust to the buyers of the stock.

The chief danger about foreign investments in our Western mines lies in the extravagant capitalization of these enterprises, on the strength of vague and visionary reports from "experts." In ordinary business, people go and look for what they want to buy; but in mining matters they wait until it is brought to their attention. We do not undertake to say that the mines "taken abroad" for sale are necessarily inferior; on the contrary, some of our best American mines have been sold, or are now offered, in foreign markets. But one thing is certain: the representations of the vendors need in all cases to be verified. They are often fortified with the written opinions of mining engineers; but these, when given for the vendors, are always general in terms. The ability and integrity of the writers may be above suspicion, but they do not give exact statements for which they can be held responsible. We say nothing at present of the loose notions prevalent among engineers concerning reports on mining property. In another article we shall indicate the sins of the profession in this regard. What we now insist upon is the employment of practical engineers in the interest of the purchasers, and the reference to them of one or both of the following questions, to be categorically and deliberately answered, viz.: Are the representations of the vendors of this property as to its value fully substantiated by the facts? Is it worth the sum at which we propose to capitalize it?

The second question is in the interest of the public, not the promoters. The latter may buy for $100,000 what they mean to sell to the public at $500,000; and it frequently happens that the consulting engineer's opinion, given in favor of the actual purchase, is paraded in the prospectus as an indorsement of the value of the watered stock. This is a wrong to the engineer and the public, and the remedy is that experts shall be more precise in their utterances, and the public shall beware of all vague and exaggerated opinions.

Some of the schemes proposed to foreign capitalists are swindles from the beginning. The mere submission of the papers to an American engineer, familiar with the mining districts, would enable him to detect at once defective titles, false returns, absurd estimates of cost and yield, reports from charlatans, and all the signs of "wild cat," with which so many of us are sadly familiar. We should not care to protect anybody from such schemes who is knave or fool enough to embark in them, but for the damaging influence which they exert upon all legitimate mining enterprises. No matter how many of them are now flourishing abroad. There are enough to vitiate the tone of the whole business. A calm, business-like, exact statement of facts scarcely produces any effect upon the public. As a gentleman, who had failed in London to sell a good mine at a fair price, remarked to us not long ago, "You have to lie, in order to make the impression of the truth."

It is the literal fact that a considerable number—perhaps a hundred—of productive and profitable gold and silver mines could now be bought at pretty large, but not unreasonable prices in this country. Many hundreds more are for sale, comparatively undeveloped, on terms which would fairly divide the risk between present owners and new adventurers. There is almost no excuse for those who go into this field with their eyes shut, and let themselves be swindled. It is easy to make sure of the facts.

In continuing the discussion of this subject, we shall address ourselves, first, to persons desiring in good faith to invest money in American mines; and, secondly, to the mining engineers of this country, whose duty it is to infuse into their professional practice a higher code of honor.

We may add here that there are two sentiments with which we have no sympathy. The first is that of the London *Times*, which condemns all investments in American mines, and garbles quotations from official reports, to show that they are not profitable. The *Times* should know enough of Americans to be aware that they do not carry on for twenty years a business which produces annually from sixty to seventy million dollars, at a steady loss. The *average* result of our mining in the West, which, we freely confess, has not been largely profitable, is made up of enterprises which pay handsomely, and foolish undertakings, which bring total loss. If the wise were not so successful, the fools would not be *such* fools. Let the *Times* point out the plain road of ordinary prudence, and its followers will have no cause to complain. The other sentiment referred to is expressed in a recent silly letter to the San Francisco *Bulletin*, in which the writer mourns that our rich gold fields are falling "into the hands of foreign capitalists, to the exclusion of our own toiling miner." That toiling miner has done nearly all that he can without capital; and the sooner he is excluded by the simple process of selling his claim to somebody who can make it productive, the better for him.

In a word, the question of nationality has nothing to do with the case. Capitalists should not be swindled because they are Englishmen; mines should not be condemned because they are American; it is our intention to protect and encourage both.

Fire-Proof Houses.

The appalling calamity which has devastated the great city of Chicago is a terrible comment upon the fancied security of men, in the apparatus, financial and mechanical, which they have devised to protect themselves against loss by the destructive forces of Nature. Fire-proof houses and safes, to resist the devouring element; fire-engines, to extinguish it; fire-insurance, to distribute its evil results upon the community, and lighten the burden of the sufferers—this triple fortification melts away before the resistless enemy, and is useless when most sorely needed.

We are most concerned, as technical journalists, with the failure of the fire-proof constructions in the hour of trial. No material is absolutely fire-proof. This last, terrible experience has shown anew that security obtained by the best methods of construction known to mechanical art is but relative. Doubtless there will be further improvement in this direction; but that is, in our opinion, an unsatisfactory answer to the question all inhabitants of cities have to ask themselves: How can we escape such perils as have suddenly grown to awful reality of instant destruction in Chicago?

The fact is, occasional fire-proof constructions will not protect even their own occupants where dangerous accumulations of combustible materials are permitted in the neighborhood. People cannot shut themselves up in their massive palaces, and safely ignore the tenement houses on the next block. The whole community must be protected, or no part of it is safe.

This is true, in vital statistics, of pestilential diseases; it is true, in moral affairs, of vice and crime; and now it is luridly illustrated in regard to material destruction by fire. The raging flame which devoured in an hour the stately court-house of Chicago, that had been twenty years in building, was nursed to its terrible strength in crowded lumber-yards, rickety old workshops, and wooden tenements of the poor.

Chicago will arise again. She cannot surpass, in her second youth, the glory of her first; but she will have learned that such a glory rests on precarious foundations. We look to see, not greater splendor in her chief buildings, but greater solidity and security in her meanest ones. Yet, we must add, Chicago was no worse in this respect than many great cities. May her fate be timely warning to us all.

MINING SUMMARY.

California.

ALPINE COUNTY.

The Alpine *Monitor* of September 30, has the following article headed "The Outlook for Winter:

The heavy frost of last night, and the wind storm which prevailed during the early part of the week, tell in unmistakable language of the approach of winter. Winter here in Alpine is not so merely by the almanac, as it is in California west of the Sierras; it has all the rigor and intensity which would make it pass for winter in New England or New York. The question then comes up here at home and is thrust upon us from afar and near by thousands who look with deep interest for results from Alpine—What have we to keep us the coming winter from relapsing into a semi-dormant state as heretofore?

Well, though the Globe mine developed to copper, so as to render its mill useless, the Monitor and N. W. crushing machinery proved worthless, which causes a delay of some weeks in the shipment of bullion therefrom; the Exchequer has been a longer time in getting its mine in producing trim than at first supposed, and the Schenectady Company, owing to its being a great wheel, which always moves slow, was late in getting its mill building under weigh; yet all these enterprises are so far advanced toward results that even a hard winter will not prevent a continuance of busy operations; an onward movement toward the paying point, which will be reached by some at an early day. The Exchequer has several hundred tons of pay ore out which will soon be run through the mill. The Monitor mill will soon have stamps in and be pounding away on pay ore, the mine being fully able to keep it supplied from the start. The Globe mine is to have steam hoisting works put on at once, which will enable this company to go down on and take out its rich copper ore, which is immediately available for cash at the dump. The Schenectady mill, though perhaps it may be midwinter before ready for converting the rich and exhaustless ores of the company's mine into bullion, will be enclosed before the stormy weather sets in for good, and employ a large force all the way through. Altogether, there is no reason for saying to us now, "It's the old thing; next summer you'll show something;" life and and activity prevails and will continue to do so.

We clip the following from the Grass Valley *Union* of Sept. 80:

THE RISING SUN.

The Auburn *Stars and Stripes* of last Thursday tells us about the wonderfully rich rock at the Rising Sun mine of Colfax:

"We have before us a number of specimens of quartz from the east drift on the 310-foot level of the Rising Sun mine, Colfax. This rock is deep blue in color and heavily seamed and studded with chunks of gold. In visible richness and in appearances which indicate permanence, we have never seen any as fine rock from any mine in Placer county, and none superior to it from any source. As above indicated, this rock has a depth of 310 feet, and it is from a point about two hundred feet from the shaft. All of the intervening space, except at slight intervals, has been remarkably rich, and the working of this drift has regularly yielded handsome dividends. The rock before us, which is reliable for six thousand dollars per ton, gives assurance that the immediately future workings will surpass any of past times, and we can no longer entertain a doubt that this enterprising company is to reap substantial and rich rewards for their confidence and perseverance."

The Auburn *Herald* of Saturday has this further notice of the same mine:

"We were shown, Wednesday last, by J. H. Neff, senator from this county, some half a dozen pieces of rich quartz, weighing in the aggregate some five or six pounds. The rock is seamed with gold which, if all in one, would make a slab of gold about half an inch thick, running longitudinally through the ledge, which is about a foot thick at this point. The gold is very pure and worth $18 50 per ounce. Such rock as we saw should yield $15,000 or $20,000 to the ton. Some distance from this point the ledge widens to four feet, and is an almost solid mass of rich sulphurets. This very rich body of ore was opened on Saturday at a depth of 310 feet from the surface, a point far below any atmospheric influence, and for this reason more reliable as a permanent and extensive deposit. This mine has been worked for several years, and within the past year the company have sunk the shaft from the depth of 280 feet to the present depth of 310 feet, aside from drifting and prospecting the ledge as they went down. The company have a five-stamp mill, steam power, eight hundred-pound stamps, nine-inch dies, eleven-inch drop and sixty-five drops per minute, with a capacity of ten tons per day. There is 3,000 feet in the claim, and within the past three months dividends to the amount of seven dollars per foot have been declared and paid, being a net profit on the working of the mine in ninety days of $21,000. This is the deepest working mine in the county, and although the owners had at one time expended over $60,000 over receipts, they kept on with undaunted courage, knowing no such word as fail, and now richly deserve their success and the fine prospect in sight."

Colorado.

We clip the following from the Central City *Register* of October 4:

The Swansea furnace has just changed hands. The firm name is now Kearsing, Patterson & Mullen. The two last-named are Denver men. The work of desulphurizing ores commences immediately. This will be done in heaps in the yards, the same as at Hills. The furnace is completed except the coating of enamel on the inside. The crushing apparatus will consist of a Dodge crusher and Cornish roller. Much interest is felt in the result. Ores at the various mines are abundant, and miners and prospectors generally are holding on for a home market. The works are conveniently situated a little below the town, eastward.

THE MAMMOTH LODE,

near Cardinal, a little north from the Boulder County, is vigorously worked by Dr. Hopkins. When we were there he had a complement of men in three shafts. From one of these two tons of marketable silver and gold ore was raised that day. It seems to be the twin sister to the Boulder County lode. It is taking rank as a first class mine in Grand Island.

THE STURTEVANT LODE

is situated on the crown of the hill west from the Mammoth lode. This is the richest gold lode we have seen in the district, and is a strong, true vein. It assays at the rate of $1,300 in gold, and about 25 ounces in silver per ton. The main shaft is now 23 feet deep, and work is progressing. The dump makes a fine showing of wonderfully rich gold ore. The high point of land on which it is situated is well termed the Gold Hill of Grand Island. The owners are McKnight, Mishler & Co.

THE ELEPHANT

is one of the mammoth veins of Caribou Hill, with black sulphurets in a soft, white gangue, with a six-foot crevice, easily mined. The grade of the ore is not high, but increases in value as depth is gained, and without contraction of crevice. The main shaft is about fifty feet, and going down. Among the owners of this valuable property are H. and F. Eggert, Hessinger, Reith, Sansford, S. and D. Mishler, and Geo. Lytle. Another lode worked on the Idaho Hill is the

MONITOR,

well-cribbed to the depth of sixty-four feet, of the same general character as the mineral veins described above—common to all on the hill. Their situation is 500 or 600 feet north from the town, near the summit, and on the meridian of the Caribou.

MOUNTAIN RAILWAYS.

Junius Berkley, Esq., one of the surveying party from Boulder on the mountain railway line, was here yesterday morning. The survey ended in the Caribou Park, a little way north of town. They make no grade, we understand, greater than 150 feet to the mile. The altitude of the upper end of the Park is above 9,000 feet, and from this point it is thought there will be no difficulty in getting a good route into the Middle Park on either side of the Arapahoe Peak, which is situated between the heads of the north and south forks of the Middle Boulder creeks. On the south side is the old Boulder Pass, and on the north side the depression in the range is about the same, and not much higher. it is said, than the Caribou Park. Further examination for the passage of the range will be made. It is quite a point gained to have demonstrated that through Boulder county there is a practicable railroad route to the height of the Caribou mine, on easy grade, all the way through a rich mineral country, and which may be extended westward to Salt Lake.

INCLOSING FOR WINTER WORK.

Over the Grand View, the Monitor, and the Conger, good shafting houses are being built. We hear of many others purposed. Let not the winter storms find anyone unprepared. Caribou street ought to be graded this fall, else next spring, while the snows are melting, it will become almost impassable.

MINERAL POINT

is a silver mining locality situated north from the town of Caribou about half a mile, and about the same distance south of Pomeroy mountain. The first lode found here is the

NORTHWESTERN,

worked by D. W. J. Mann, which has the appearance of a valuable silver lode, and is certainly a very strong mineral vein. The main shaft is sunk to the depth of about thirty feet. There is considerable ore on the dump, the best of which is estimated at $200 per ton. A little further north is the

AMANDA LODE,

Fuller & Wooley, owners. This bears a high reputation for rich ores, the last assay showing, from a galenous specimen, at the rate of $3,726 per ton. The rich streak is yet narrow, but "go down" is the word with the boys. Development has shown the Caribou mine worth a million, and development will do the same for many others. In this cluster of mineral locations, of which Dr. Mann's big Northwestern seems to be the centre, is one of much promise, the

MOSQUITO,

worked by its owners, Danforth, Patterson & Barick. Mineral Point is in Caribou Park, with good coals, water, and every convenience for profitable working. Returning towards town to the Idaho hill, and extending our walk a short distance westward, we come to the northern slope of the Caribou hill, and the

AMERICAN FLAG,

which is the name of Gesher & Burnham's silver vein. From this has been raised some of the richest ore found in the district—about as near pure silver as ore is ever made; but at the depth of thirty-three feet all rich mineral disappeared, and is beginning to come in again at the depth of forty-eight feet. This time it has the appearance of permanence, being more regular in formation, and extending evenly as far as traced. Very rare are the locations on any lode entirely free from these barren spaces, especially near the surface. Every prospector and miner should expect them. This is not caused by a narrowing of the vein; the walls remain true and smooth and well apart, but the space between them is sometimes all filled with gangue rock, but this rarely continues more than ten or fifteen feet before opening into ore. We know no such thing here as "cap"—that is, the walls coming together so as to close up the crevice. Westerly from the "American Flag" is the next main east-and-west-vein, parallel with the Caribou lode, and about five hundred feet below, called

THE SHERMAN.

This was an early discovery, and is, perhaps, next to the Caribou above, the most valuable of the hill. The main shaft is seventy feet. Although considerable good ore from it has been raised and sent to market, subsequent developments have shown that it was on the poorest point of the lode. Seventy feet west the paying ore commenced at the grass roots, and at the depth of eighteen feet the ore crevice is eight feet, with a good proportion of high grades. This is now worked by John Anderson and Erick Bottolfson. They will ship a part of their ore to Black Hawk, but will retain the bulk for a home market. On the same hill is

THE MORNING STAR,

a mine we have had frequent occasion to mention, not only on account of the steady perseverance of the owners in its development, but by reason of the constant improvement with every foot in depth which has rewarded their work. The ore comes in like a wedge, the thin edge upward, and gradually widening downward. They have now attained a depth of forty-seven feet, with a gradually widening crevice—in this respect hardly less remarkable than the Caribou. They are about to ship ore to Black Hawk. Further west on the Caribou hill, just beyond the line of lodes which have hitherto attracted most attention, we found some of the very best silver veins it has ever been our pleasure to visit.

THE ILLINOIS

is one of those worked and owned by John C. Miller and Wm. Snyder. Since its discovery, four weeks ago, they have opened it twenty-feet deep. Tests made of their best ore show its value to be $500 per ton. We shall note with interest the developments of this very promising discovery. We congratulate the owners on their good fortune. In this vicinity we found work progressing on

SEVEN-THIRTY,

in the east level, by under-hand stoping. This level was run at the depth of forty feet from the surface, along the upper edge of the pay streak, which is thickening at every foot in dept. No richer ore is found than this ledge is producing. Near by is the Ten-forty, which ought to be

worked. The reason we frequently hear given for not working good lodes is "too many owners."

Idaho.

The *World*, of Sept. 20th, has the following on

AFFAIRS ACROSS THE BASIN.

We took a trip across the Basin a few days ago, visiting all the camps on the other side, and found that very little placer mining was being carried on anywhere. At Pioneer City we found our friend Ben Willson still engaged in mining on Orleans Bar, near the upper end, on ground which gives every indication of being as good, if not better, than any that has heretofore been worked on the Bar. The bank is from twenty to twenty-five feet deep, with gravel nearly to the top, and the bedrock looking splendid. He has the claim in fine order for working, using iron pipe altogether, which extends from the Big Ditch down to the claim, a distance of more than two thousand feet in the direction taken by the pipe, and the fall is so great that the water has force enough to roll boulders as big as a flour barrel. Mr. Willson has been engaged, the present season, in working quite a number of claims, and he has spared no expense in putting them in No. 1 order. He has had in use during this season some five or six thousand feet of iron pipe, and uses four or five of the Smith patent distributors, manufactured by Hinckly & Co., of San Francisco, one of them distributing four heads of water from the principal pipe or main, which is one foot in diameter. He has his numerous claims in excellent order, and will carry on mining operations on an extensive scale next summer. We understood that Stephenson & Co. had suspended operations on their claims above Pioneer City; and the scarcity of water has caused a general cessation of mining in that section. Messrs. CLARKSON & BROWN, proprietors of the celebrated mine at Summit Flat, also informed us that for want of water they had shut down their quartz mill for the season, but were still engaged in taking ore from the mine. The discoverers of the Golden Era are actively at work developing their mine, and the owners of the west extension are also prosecuting work on their tunnel.

At Centerville we heard the same complaint of dull times, though some little mining is being carried on in that region; and the fact that a Monte game has been running in Centerville for several weeks would seem to indicate that money is a little more flush there than in the other camps. There is quite a large number of quartz ledges in the neighborhood of Centerville, many of them having had considerable work done on them, and the quartz from which prospects well, but the failure of the mills which were in operation near Grimes' Creek in 1864-5, acted as a damper on the quartz interests of that section; and the people have met with but little encouragement to renew active operations on their mines. We are confident that the quartz ledges near Centreville will be worked some day, and that they will pay, but experience is a dear school in which to learn the proper manner of working a mine to advantage, and of running a quartz mill so as to save the gold. Putting up a quartz mill so that the stamps will pound away in the batteries is well enough, so far as crushing the quartz is concerned; but that is the least part of the operation of getting the gold out of the rock, especially if the ore contains sulphurets.

Having been provided with an excellent riding horse by Messrs. Braun & Dempsey, who keep the livery stable at Centerville, we left there on Sunday morning for Granite Creek, stopping at Centerville on the way. At the latter place we found times rather dull and but few miners in town, and after calling on several friends we proceeded to Granite Creek and Quartzburg. At the Gold Hill mill we met the Messrs. Coughanour, Superintendent and Secretary of the Company, who showed us through the mill, which was pounding away as usual on a very good quality of ore. The mill is in splendid condition and the machinery kept as clean and bright as a set of casters on a dinner table. The mine is in fine order, and the principal amount of ore being crushed is taken from the lower tunnel, although some is being taken from one or two stopes which are being worked out higher up in the mine.

At Quartzburg we dined with our friend Sullivan, who knows how to keep a hotel, and also met Mr. C. Clark and Major Allen, former residents of Idaho, who are engaged in merchandizing and doing a good business at that place. We found that the quartz excitement was still at fever heat, and that numbers of parties were engaged in prospecting in every direction throughout that section. Mr. John Eissler has a force of hands timbering his mine, which seems to be looked upon as one of the best in that section, and upon the South or West fork of Granite Messrs. Frary & Co. are taking out large quantities of unusually rich ore from the Lawyer ledge. Hart's mill is running day and night on ore from the latter mine, and the clean-ups seem eminently satisfactory to the owners of the mine and mill both. We intended to have visited this mill and also to have gone up to the mine, but the day was getting far advanced and the knowledge of a fifteen-mile ride before us deterred us from doing so, and we were reluctantly compelled to defer our visit until some future time. We were informed that the Yellow Jacket mine was still lying idle, but that there was a probability of work being resumed on it during the coming winter.

There can no longer be any doubt of the richness of the quartz ledges in Granite district, as the Gold Hill Company and Mr. T. S. Hart have fully demonstrated that, by proper management, we have as good paying mines as can be found in Utah or Nevada. After calling on our friends Con Haley, James McKay, John Brogan, George Gooding and a few others, at Granite, we started on our return trip, and, after reaching Centerville, changed horses, procuring one from our teutonic friend Jackson, and arrived at home about 9 o'clock at night, well pleased with our trip, and what we had seen of mining affairs generally, across the Basin.

The same paper says: Another quartz lode was discovered at Granite Creek, on the 22d inst., by Mr. C. Clark, which, from present indications, promises to be one of the best ledges discovered in that section of the country. It is located on the divide between Granite Creek and California Gulch, and is between the Gold Bar and Yellow Jacket ledges. Mr. Clark found the ledge where it crosses John Gallagher's ditch, and with a hatchet took out a quantity of the ore which is rich in sulphurets, being literally full of pyrites of iron and the quartz is of a soft nature, similar in many respects to that of the Gold Hill lode, of which it is believed the new discovery is an extension. We examined some of the quartz which was taken from the surface in the bottom of the ditch, and were astonished at the amount of pyrites it contained for top rock. The ledge is four feet and a half in width where it was struck, and the full width not yet determined, as but little, if any, work had been done on it, at least not enough to settle its exact width. The ledge is well located, being high up on the side of the mountain, and any depth required can be reached by a tunnel. The owners are confident they have a good thing, and we learn that it is their intention to immediately commence work developing their new mine. The mountain where this mine is located appears to be a solid belt of quartz ledges, and the locality peculiarly favorable to the successful working of the mines, wood and water being in abundance, and the mountain steep and high enough to render the working of the ledges by means of tunnels a very easy matter.

From the Owyhee *Avalanche*, of September 30.

SOUTH MOUNTAIN.

Intelligence just received from Salt Lake makes it pretty certain that the Golconda and Hope mines, situated in South Mining District, and owned by Wessels, Johnson, Donnelly and others, have been sold to Seven Oaks, HOLCOMB & Co. for $50,000. It is also very probable that the Original and Galena, owned by WESSELS & HARDY, have been sold to the same Company for $200,000.

The report of Mr. Hichens, a mining expert sent here to examine the property, is, we understand, of the most favorable character. The lowest yield of several hundred pounds of average ore, sent away for reduction, was $32 per ton, a handsome figure, when the unlimited quantity that can be obtained is taken into consideration.

S. M. Wessels is expected back from Salt Lake in a week or ten days, accompanied by some of the parties who have made the purchase.

It has just come to light that some San Franciscan capitalists have, for some time, been quietly testing the South Mountain ores, with a view of instituting operations there, but Seven Oaks & Co. have got the start of them.

New and rich discoveries are being made every day and Recorder Beckett is kept busy recording claims.

E. B. Johnson came in day before yesterday and informs us that, when he left, there were about forty men in the District—mostly from Silver City and Flint.

Hon. F. E. Ensign has made two discoveries, out of which he confidently expects to realize a fortune.

A ledge, said to be fifty feet wide and very rich, was discovered, a few days ago, and named "Avalanche," in honor of our paper. We hope it will pan out a thousand fold better than our *Avalanche* has.

Pete Donnelly is assiduously studying "Kustel," and other scientific works on mining, and the boys have dubbed him "Professor."

Taken altogether, the news from South Mountain is of the most cheering description, and there will, doubtless, be a big rush there this fall.

The distance from Silver City to the mines, by way of Flint, is estimated at twenty-five miles. Parties walk it in less than a day.

We shall take occasion to visit the new camp before long, and let our readers know all about it.

The same paper has the following

MINING ITEMS.

A. P. Minear is now Superintendent of the Ida Elmore, Minnesota, and Mahogany mines. Guthrie Conway is foreman of the Elmore; John C. Schmidt, of the Minnesota; Mr. Kirkpatrick, of the Mahogany.

David Davis has been appointed Superintendent of the Golden Chariot, in place of John S. Cassell, resigned.

Our citizens will be glad to know that work will be resumed on the Ida Elmore next Monday.

W. D. Walbridge is Superintendent of the War Eagle (Skookum) and, we understand, will immediately put twenty-five men to work in that mine. We are informed that Col. Hay & Co. received for the Skookum $16,000, and $4,000 shares of stock, unassessible for a certain number of months.

A whim house will immediately be put up on the Minnesota mine, large enough for steam hoisting works when occasion demands.

The Oro Fino is turning out good pay ore and will doubtless be extensively worked all winter.

People are showing a greater disposition than ever to prospect and develop their mines, demonstrating the fact of increased confidence in the stability and richness of our camp.

Nevada.

COMSTOCK LODE

The *Gold Hill News* says:

The southern portion of the great Comstock lode is now in an extreme high degree of favor and prosperity little dreamed of one year ago. In fact, at that time the mines south of the Yellow Jacket were looked upon as mere speculative arrangements, possessing very little of real merit, the only ore found in any of them being of low grade, not paying the expenses of working the mines. A year ago the Crown Point Company had concluded to shut down their mine in January, as it could only be kept working by levying assessments, and the prospects ahead were decidedly gloomy. But mark the surprising change since then. The largest, finest, and most valuable body of ore ever found in the Comstock has been developed in the Crown Point lower levels, extending through into the Belcher to an as yet undefined distance and extent. Latterly, it is found to be of greater width and extent in the Crown Point than was expected by even the most sanguine, giving a huge breadth of rich ore all the way to the Belcher north line. How far south it goes in the Belcher is not yet ascertained beyond a hundred feet or so. The Belcher claim is 940 feet in length. The rich ore body at its lower level is worked and being extracted by means of the Yellow Jacket shaft, but eventually the company will sink a shaft of its own farther east. The Segregated Belcher claim, adjoining it on the south, is 160 feet in length, and in anticipation of also getting a portion of the deep rich deposit, that company are about commencing a new shaft east of their old works. Next south comes the Overman Company, who have already a large new shaft well commenced, 1,500 feet east of their present works, sinking after that same rich deposit or some other just as good or just as likely to exist at a similar depth. The stocks in all these mines mentioned are up in consequence of these improvements and decidedly good prospects. Even the Caledonia Company have developed some very good ore at their 400 foot level, and their future prospects are much improved. The Yellow Jacket is very likely to strike something good at their lowest levels before long, and we hope the good developments may eventually be found to extend farther north among the mines of Gold Hill. So much for the south end of the Comstock. Everybody, as well as ourself, of course, wishes all the rest of the ledge, even to its extreme north end, to come out all right.

[From the Gold Hill *News* of Sept. 29.]

BELCHER.

The ore body at the lower level of this mine is looking better and more extensive as further developed. It has been drifted upon 130 feet south from the Crown Point line, and the face of the drift assays over $125 per ton. How far south it may extend is of course merely a matter of conjecture, but every foot adds vastly to the value of the mine. The present high price of the stock is based upon a very rich and substantial foundation.

HALE AND NORCROSS.

Last week the Hale & Norcross mine yielded 700 tons

of ore, and showed an accumulation of 1,750 tons low grade ore on the dump.

SAVAGE.

This mine yielded last week 760 tons of ore, assays of which averaged $28 30 per ton.

[From the same of Sept. 30.]

CHOLLAR-POTOSI.

There is nothing new to report in this mine in the way of big ore strikes. It is running along at its regular old gait, the ore producing sections yielding a fair amount of good bullion producing material as usual. A good deal of active prospecting work is being done in various parts of the mine, and everybody hopes they may develop another Belvidere body or so before long.

GOULD AND CURRY.

A strike of rich ore at the 400-foot level, toward the Savage, was reported on the street this morning, and a big sudden rise in the stock predicted in consequence. We are sorry to say there was no just foundation for the report.

BELCHER ASSAYS.

The average assays from the 1,100-foot level of the Belcher mine, taken within the last few days, have been $190 per ton. The actual milling average of the ore is $70 per ton. That is very good for high.

CALEDONIA.

Two mills are kept running on ore from this mine, principally from the 400-foot level, which is yielding and promising well. The new shaft of the company is progressing downward at a satisfactory rate.

OPHIR.

The new shaft of this company is now down nearly 1,100 feet and good farther progress is being made. What water is coming in is not enough to interfere with the work materially.

OVERMAN.

The new shaft of this company is now down about 115 feet. The bottom is in hard porphyry, but it blasts well and good progress is made.

CROWN POINT.

The 1,200-foot level of this valuable mine shows better and better the farther it is developed. The full extent of the ore is not yet known by any means, and much of it is of a very high grade. The ore producing levels above are also looking and promising well. Last week the mine yielded 572 tons, the estimated mill value of which was $15,591 11. Crown Point stock is up, but not by any means above its merits.

Utah.

We extract the following items from a correspondence in the Salt Lake *Daily News* of Oct. 3.

Col's Bell and Weightman are in charge of the Hawkseye Smelting Works, which have been in operation a week, and are turning out three tons per day of the richest bullion in Utah. They are smelting at present the Richmond ore exclusively, which contains barely lead enough to work well; the chloride and carbonate ores, to use a miner's expression, "run through like molasses." Perhaps "O. Slagg" might be able to obtain here his much sought *flux Molassicum*. Big Cottonwood as a mining camp may be set down as two years old, though originally a part of the great district "Lakeside," organized by General Connor and others in 1864. The first locations were made in Silver Fork, and entered in the Little Cottonwood books; but the present district was organized March 17th, 1870, by a miner's meeting, of which Mr McMullan was Chairman, and H. C. Hullinger, Secretary. Connor's men had obtained traces of silver here. Hullinger was elected Recorder and still holds that office. There are now 625 locations in the district, of which the best developed are in Silver Fork, Honeycomb and Mill F. regions. Gesler's Peak is attracting much attention, and contains a score of fine prospects, but it is not developed sufficient to be reported with certainty. Space fails to mention even those locations which are here considered important. I select those of which most is known, in their order upon the books:

1. Slate Springs, first location, was recorded May 21st, 1870, by Hullinger and others. It was down near the mouth of the canyon, and is but little developed.

2. Next is the Evergreen, located June 4th, 1870, a good prospect, but worked with but little vigor.

4. Fourth is the Antelope, located June 15th, 1870, a good mine, with a tunnel 60 feet into the hill, and work going on vigorously. It is combined with the Prince of Wales.

10. Tenth location is the Davenport, the developed mine of Silver Fork, located June 16th, 1870, and now known to the world as a mine of wealth.

11. The Wellington, also known to fame, located July 2d, 1870.

19. The Congress, first rate mine, located July 1st, 1870.

24. The Independence was located July 4th, 1870—on a good day, and starting with a good name!—has not fulfilled its promise. The owners claim much for it, but the ore is not yet in sight.

27. The Richmond was located June 26th, 1870, having been located some time before in Little Cottonwood.

30. The What-Is-It was located June 30th, 1870, by Henry Schofield and others, and has lately proved to be a good mine beyond doubt.

38. The Lone Star State is a tunnel, looking quite promising.

41. The Giraffe, a promising claim, was located July 22d, 1870, by Ridout and others. The title is disputed by some Welsh miners, who claim that it is part of the Warrior.

42. The Wandering Boy—August 6th, 1870—was long in developing, but has lately done wonders; 1800 pounds of ore were lately taken out in one day, which assayed $222 43 per ton, with 70 per cent. of lead.

53. The Beckwith has a small vein, but very rich. On eight assays it averaged over $500 per ton. They have taken out 100 tons in all.

68. The Lakeview has a large vein of very low grade ore.

69. The Scott is of the same kind. To-day they have nine feet of ore in front of them, but of low grade.

71. The Reed & Benson was located in South Fork, August 5, 1870. It is now one of the established mines in Cottonwood.

77. The Eclipse has developed a large body of low grade ore.

88. The Hidden Treasure is well spoken of, but I have met none of the proprietors to obtain particulars. These locations present a fair average of the district, which is still in its infancy—not fairly prospected yet. Oscar Young and his partner have "struck it rich" in the "Zoah," and from present indications have a fortune in their grasp.

Montana.

From the *Daily Herald* of September 25.

THE PARK DITCH.

While Helena is very justly congratulating herself upon her new reduction works, she has no less cause to rejoice in the greatly increased supply of water to the placer mines which we are promised for next year. Principal among the sources of this supply is the Park Ditch, which would have more fully realized the expectations of its builders during the present season had it not been for faults in its construction and delays in its completion. But such alterations and improvements are now being made in it, under the direction of Col. A. M. Woolfolk, its principal owner and superintendent, as will secure a supply of water as great as that furnished by any ditch in this vicinity. The dams at the Park lake are being greatly strengthened by heavy timber work, and raised one and a half feet. An artificial lake, over half a mile in length, is being constructed about one mile above this. For the purpose of forming this reservoir there is required at its lower end a strongly timbered dam over six hundred feet in length and twenty-two feet in height. This new lake will hold abont 30,000 inches of water, miners' measure, and the old Park lake as now improved, will contain some 40,000 inches, making 70,000 inches of water which will be available during the summer season. The company also have a reservoir on Beaver creek, and distributing reservoir at the head of Grizzly gulch. It is estimated that the ditch can, without touching its lakes, furnish 550 inches of water per day, for one and a half months next spring, and after that the lakes will furnish the same amount daily for four months longer. If these expectations should be realized, we shall have one of the best placer mining seasons next year that has been seen in this vicinity since the early days of the town. The whole cost of the Park Ditch enterprise, thus far, is over $50,000; but, notwithstanding the many discouraging circumstances connected with its construction, we believe it will still prove highly remunerative to its owners, and of great benefit to the miners and this city.

From the Deer Lodge City *Independent* of Sept. 16.

CABLE CITY.

Mr. James Batterton, who came in from Cable City on Monday, tells us that the pump in the Cameron mine has been repaired, and that the water will be so far removed from the mine in a few days as to admit of taking out quartz. Kohrs & Co.'s mine is now being successfully run, one hydraulic only being used. The water in the ditch is slightly increasing since the advent of cold nights. The company have contracted for 40,000 feet of lumber, with which they will lay a flume to the lower portion of their ground and dump their tailings near the Passaic mill. The flume will be about 4000 feet in length. One hundred tons of float rock has been saved while sluicing, which is very rich, they having refused twenty dollars per ton for it. It is fully believed the quartz will pay all expenses of running the mine, leaving the free gold as clear profit to the owners. They have acres of good paying ground and plenty of water, which renders it the most valuable placer mine in Montana. The Miners' and Mechanics' Tunnel is progressing steadily. It is now in in 1300 feet. The rock is getting softer, and the indications are very favorable that a ledge will be tapped in a short time, but then it may take many months to reach it.

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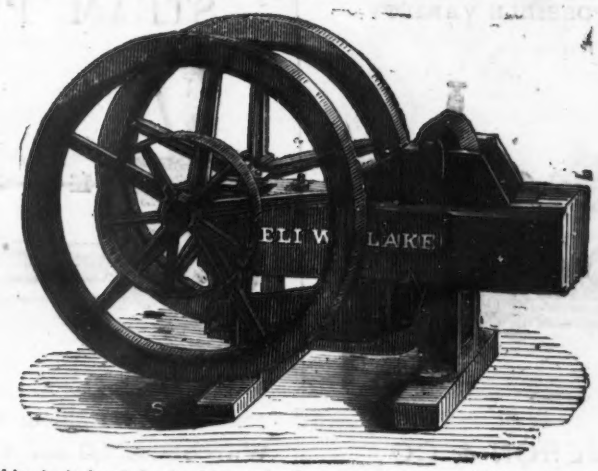

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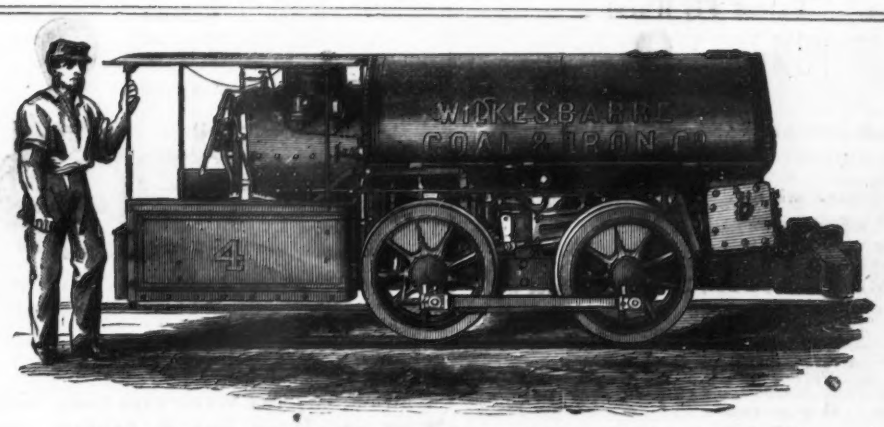

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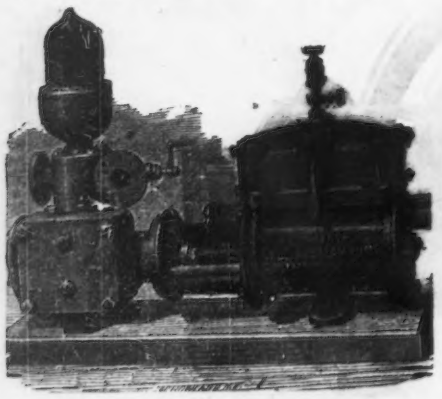

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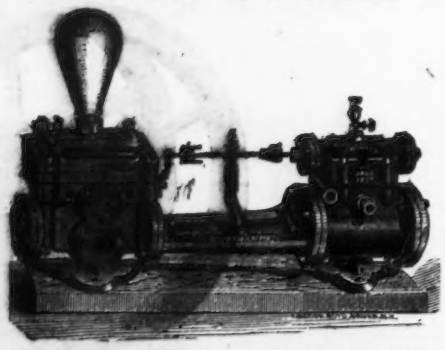

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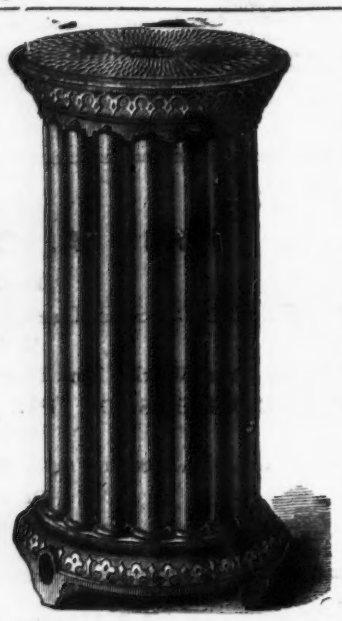

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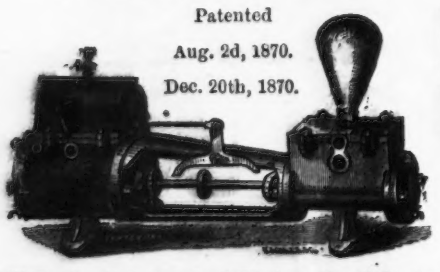

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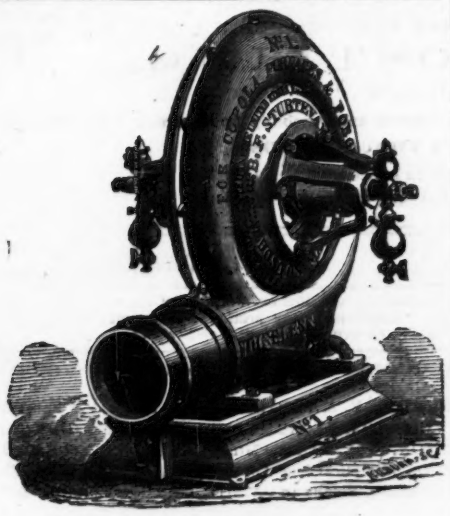

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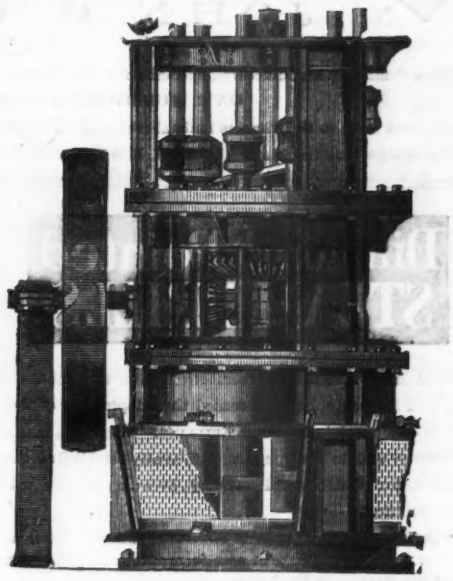

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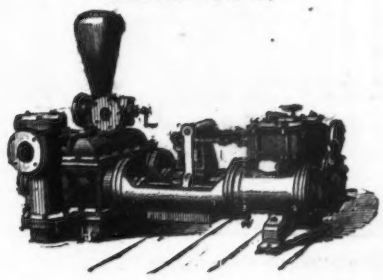

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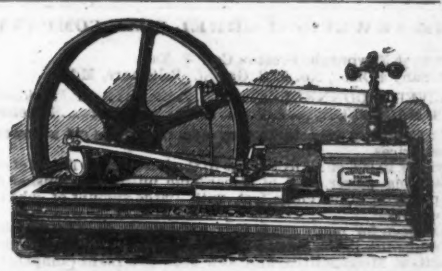

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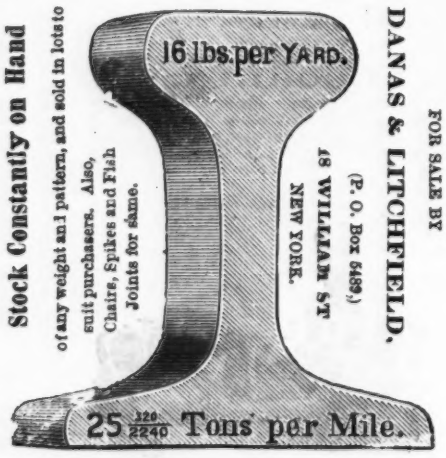
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